

Journal of Mycology

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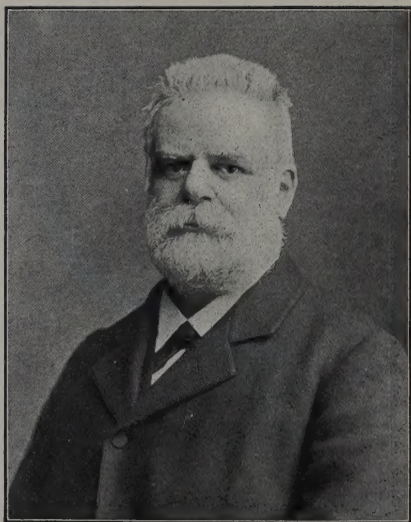
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NEW SPECIES OF PYRENOAMYCETES.

A. P. MORGAN.

TRICHOSPHERIA INVISIA Morgan n. sp.—Perithecia superficial, gregarious, ovoid, clothed with long straight pale brown bristles. Asci 8-sporous, paraphysate, with a short stalk, 55-65 x 8-9 mic.; spores globose or oval, hyaline, smooth, 8-9 x 7-8 mic.

Growing on old wood of *Platanus*. Preston, O., 1897. Perithecia 0.3-0.4 mm. in diameter, the smoky-pellucid hairs 0.10-0.15 mm. in length, scarcely septate. An elegant species, but so like the substratum in color as to be overlooked.

TREMATOSPHERIA FAGINEA Morgan n. sp.—Perithecia gregarious, semi-immersed, ovoid, smooth, black; the ostiola simple, pertuse by a small pore. Asci cylindric, 8-sporous, the spores obliquely uniseriate, with a short stalk and long filiform paraphyses, 110-128 x 11-13 mic.; spores elliptic-oblong, at first hyaline, becoming smoky-pellucid, 3-septate, 14-17 x 8-10 mic.

Growing on a prostrate trunk of *Fagus*; Preston, O., March, 1904. The perithecia 0.4-0.5 mm. in diameter, emerging about half way out of the bark.

BERTIELLA BOTRYOSA Morgan n. sp.—Perithecia caespitoseconnate into small depressed tubercles, circular or irregular in shape; the individual perithecia minute, subglobose, regulose, black, with simple ostiola. Asci cylindric-clavate, with a short stalk, paraphysate, 8-sporous, the spores biseriate, 100-110 x 11-14 mic.; spores fusiform, hyaline, 1-3-septate, 20-30 x 5-6 mic.

Growing on hard wood of *Ulmus*; Preston, O. The perithecia about 0.2 mm. in diameter, nearly always connate, 5-10 together into a small tubercle and the wood often blackened beneath them. The specific name is given because the plant answers remarkably well to the *Sphaeria botryosa* described by Fries, S. M. III, 342. The genus *Bertiella* should stand next to *Ziznoella* or else be incorporated with it.

ENCHNOSPHERIA HISPIDA Morgan n. sp.—Perithecia superficial, gregarious, ovoid, the wall thick and carbonaceous, clothed with long, black, straight bristles. Asci clavate-cylindric, 8-sporous, paraphysate, 110-120 x 10-12 mic.; spores clavate-oblong, obtuse at both ends, hyaline, 0-3-septate, 15-20 x 5-8 mic.

Growing inside the bark of *Acer*; Preston, O., 1897. Perithecia 0.3-0.4 mm. in diameter, the thick straight bristles 0.1-0.2 mm. in length.

ACANTHOSTIGMA DISPAR Morgan n. sp.—Perithecia superficial, ovoid, black, papillate, the surface with minute scattered bristles or nearly glabrous, the wall composed mostly of large globose membranaceous cells. Asci lanceolate, curved, 8-sporous, the spores overlapping 2-3-seriate, the paraphyses scanty, the stalk very short, 160-180 x 9-12 mic.; spores linear-fusiform, curved, hyaline, 7-11-septate, 45-60 x 4 mic.

Growing on rotten wood; Preston, O., 1900. Perithecia gregarious, closely crowded or scattered 0.3-0.4 mm. in diameter. The young perithecia are distinctly bristly but the short bristles nearly disappear at maturity. The globular cells of the wall expand when moistened and are 20-25 mic. in diameter; this feature suggests the genus *Winterina* and indeed if Berlese's definition of the genus *Winterella* is to be accepted the species is so referable; the wall of the perithecium is tuberculigerous at least when moist. The species is closely related to *Acanthostigma scopula* and *A. minutum*; this is plainly shown by Berlese's "*Clavis analytica*", division D. To these must be added *A. scleranthoides* and *A. chusqueae* in the *Sylloge XIV*.

HYPOXYLON REGALE Morgan n. sp.—Stroma superficial, effused in small irregular spots or patches, composed entirely of confluent perithecia. Perithecia large, globose, black, the ostiola minutely papillate. Asci cylindric, short-stalked, 150-170 x 10-12 mic., 8-sporous, the spores obliquely uniseriate, with slender delicate paraphyses; spores elliptic-fusoid, inaequilateral, brown, 20-27 x 9-11 mic.

Growing on the surface of old soft wood of *Acer*, *Liriodendron*, etc. The stromata irregular in outline, composed of two or three to many perithecia; the perithecia 0.7-1.0 mm. in diameter.

NOTES ON UREDINEAE. II.

E. W. D. HOLWAY.

PUCCINIA CARICIS-ASTERIS Arthur.

An abundance of this Puccinia was found in 1902 on *Carex sparganioides* Muhl., following an aecidium on *Aster sagittifolius* Willd. growing with it. No other Aecidium or Puccinia was to be found in the vicinity. Plants of the Aster from another locality were placed in the greenhouse in 1903; teleutospores from the *Carex* were sown on them April 26; spermogonia appeared May 4 and aecidia May 13; a second sowing was made May 6; spermogonia appeared May 12 and aecidia were collected May 17 and May 20. The last infection was very strong, the plant being covered with aecidia, as the germinating teleutospores were scraped off into water and placed over the entire plant.

PUCCINIA ALBIPERIDIA Arthur.

Teleutospores from *Carex pubescens* Muhl. were sown on *Ribes gracile* Mx., April 26, 1903; aecidia were collected on May 16; spermogonia appeared in great abundance. This species is I think one of the common *Ribes* aecidia, but field observations indicate that we have others and that the more common one with large cups on much thickened spots has teleutospores on another *Carex*.

PUCCINIA RIPARIA Holway n. sp.

o. Spermogonia epiphyllous, very few, at first yellow, becoming darker.

I. Spots yellow, not thickened; aecidia hypophyllous, scattered, 1-6 in a cluster, or in greenhouse cultures covering a considerable portion of the leaf, margin recurved and split into 2-8 sections; aecidiospores hyaline, globose, minutely roughened, 22-26 μ , mostly 22 μ in diameter, walls thin.

II. Uredosori hypophyllous, oblong, brown; uredospores borne on hyaline pedicels 35-40 μ long, from which they easily fall when mature, brown, echinulate spines about 3 μ apart, wall about 2 μ thick, germ-pores 3, 26-33 x 22-26 μ .

III. Teleutosori hypophyllous, oblong, soon breaking through the epidermis which is persistent around them; teleutospores oblong to oblong-clavate, constricted at the septum, 30-40 x 13-15 μ ; apex strongly thickened, 7-11 μ , mostly 7-8 μ ; pedicel tinted, up to the length of the spore; upper cell mostly rounded, rarely pointed or truncate in the mature spore, 16-19 x 11-15 μ ; lower cell narrower, 13-19 x 10-12 μ ; wall thin.

o. I. On *Ribes floridum* L.Her., II. III. on *Carex riparia* Curt. The species described above were collected at Decorah, Ia., by the writer. The aecidium on *Ribes floridum* was first observed in 1901. In 1902 a tuft of the *Carex* covered with the Puccinia was tied onto a clump of the *Ribes* which had never been attacked by any aecidium, and on June 16 many specimens of the aecidium were collected. On May 6, 1903, teleutospores were sown in the greenhouse on *Ribes floridum* and aecidia were mature May 22; a second sowing was made May 15; spermogonia appeared May 23 and aecidia May 30. Sowings made the same days on *Urtica* and *Ribes gracile* were without result.

This aecidium is very distinct from any other *Ribes* aecidium, having white spores as well as white peridia; the spermogonia are very few. Puccinia albiperidia has small, round, brown teleutospores, not surrounded by the epidermis, while those of *P. riparia* are oblong, black, and with the ruptured epidermis very noticable. Good uredospores of the former have not been collected; Dr. Aruthur describes them as small. These two species appear to be quite distinct from European species, which all have teleutospores of the Puccinia Urticae-Caricis type, with much larger and darker teleutospores, the smallest measurements given by Klebahn being $37-56 \times 15-21\mu$.

PUCCINIA MODICA Holway n. sp.

Sori amphigenous, round or elongated, $\frac{1}{2}$ -1 mm.; uredosori brown; uredospores globose, closely and evenly tuberculate, yellowish-brown, $20-24\mu$, germ-pores 4-5, scattered; teleutospores black, pulverulent; teleutospores broadly elliptical, brown, smooth, $36-40 \times 24-32\mu$, wall thick, up to 4μ , apex rounded, $4-8\mu$ thick, pedicel persistent, hyaline, up to 120μ long; one-celled teleutospores occur.

Mexico; on *Arenaria* sp.; Etlá, Oaxaca, No. 5401 (type); Oaxaca, No. 5415; on *Arenaria peyritshii*; Cuernavaca No. 5271; all collected by the writer in 1903; on *Arenaria* sp., Tumbala, Chiapas, No. 3343, E. W. Nelson, 1895; near Salazar, No. 7039 and on *Arenaria reptans*, No. 7038, both by Rose and Painter in 1903.

PUCCINIA ECHINOPTERIDIS Holway n. sp.

II. Uredosori brown, amphigenous, mostly on the under side of the leaves and on the stems, circinate in small groups, globose to oblong, or irregular and confluent; spots pale yellow; uredospores light brown, globose to ovate, $26-33 \times 22-26\mu$ coarsely echinulate.

III. Teleutospores amphigenous, black, pulverulent, small, becoming confluent; teleutospores globose to broadly elliptical, not constricted, wall nearly uniform in thickness, sometimes slightly

thickened opposite the pedicel, which is variously inserted, mostly laterally, often in line with the septum, and globosely inflated next the spores and about the same length, strongly verrucose-reticulate, $30-44 \times 22-37\mu$; dark reddish brown. On *Echinopteris Lappula* Juss., Guadalajara, Mexico, No. 5036 Sept. 25, 1903. Tehuacan, Puebla, Mexico, No. 5338, Nov. 7, 1903. Collected by the writer.

Closely allied to *Puccinia insueta* Wint., from which it varies in its entirely different uredospores and the much stronger reticulations of the teleutospores.

Puccinia RUBRICANS Holway n. sp.

Spots crimson, mostly circular, from 1-6 mm. in diameter, most leaves having a few large spots and numerous scattered small ones. Sori amphigenous, mostly hypophyllous, solitary, scattered, or circinate on the larger spots.

II. Uredosori light brown; uredospores pale brown, globose, rarely ovate, strongly echinulate, spines $3-4\mu$ apart, wall thick, $4-6\mu$, $36-44 \times 32-36\mu$.

III. Teleutosori following in the uredosori, black, teleutospores elliptical, ferruginous, strongly verrucose, $60-68 \times 40-44\mu$, apex shortly acute, or rounded, slightly thickened, pedicel hyaline, up to 80μ long.

Collected by the writer on *Heteropteris Portillana* Wats., Guadalajara, Mex., Sept. 28, 1903, No. 5063.

Heliotype plates, from photomicrographs, will be distributed with the separates.

Minneapolis, Minn., May 20, 1903.

NOTES ON FUNGI. I. NEW OR INTERESTING AMERICAN UREDINEÆ.

BY P. L. RICKER.

AECIDIUM WILLIAMSII Ricker sp. nov.—Spots yellowish, somewhat thickened; peridia densely clustered, mostly hypophyllous, cylindrical or elliptical; spores pale yellow, subglobose, $19-26\mu$, minutely verrucose; wall medium, 2μ .

On leaves and stems of *Lithospermum angustifolium* Mx., Brookings, S. D., T. A. Williams, June 22, 1893. Specimens are also in the herbaria of the U. S. National Museum and Dr. J. C. Arthur.

This species is not related to *Puccinia lithospermi* E. & K., originally described on *Lithospermum canescens*; but which proves to be *Evolvulus pilosus* Nutt., the *Aecidium* of which is as yet undescribed, but which the author has recently had the opportunity of examining in the herbarium of Mr. M. A. Carleton of this Department.

PUCCINIA ARUNDINARIAE Schw.—This rare species which was reported by Dr. J. C. Arthur in a recent paper¹ as ranging from North Carolina to Alabama, was recently collected at Votaw, Hardin Co., Tex., March 8, 1904, on leaves of *Arundinaria* (probably *A. macrosperma*) by Mr. E. R. Hodson of the Bureau of Forestry.

PUCCINIA BURNETTI Griff.—This species was recently discovered in the U. S. National Herbarium on leaves of *Eriocoma cuspidata* Nutt., collected by Sereno Watson (No. 1292) Monitor Valley, Nevada, July 1868.

PUCCINIA CRANDALLII Pamm. & Hume.—Specimens of this species have recently been examined on *Festuca kingii* in the U. S. National Herbarium from Lima, Mont., on No. 313 C. L. Shear, June 30, 1895; Stein Mts., Oreg., on No. 2445 J. B. Leiberg, July 2, 1896; Sunset, Col., G. W. Letterman, July 1886; Sweetwater Co., Wyo., on No. 3300 Aven Nelson, July, 1897.

PUCCINIA CYNODONTIS Desm.—On leaves of *Cynodon dactylon*, Lake City, Fla., Ricker and Hume, July 29, 1902. A small amount of uredosporic material was collected near Mr. Hume's house, it being the first time that a Rust has been reported from this country on this host. The early descriptions and that in Saccardo's *Sylloge Fungorum* are rather incomplete but agree with the specimen as far as they go. The characters drawn from this collection are as follows:

Uredosori hypophyllous, prominent, rupturing the epidermis in linear rows, the epidermis remaining, early naked, pale; uredospores ovoid or globose, 19-26 μ in diameter, minutely verrucose, pores several, scattered, wall medium thick.

PUCCINIA DEFORMATA B. & C.—On glumes and pedicels of *Olyra latifolia* L., near Mayaguez, Porto Rico, A. A. Heller, Jan. 30, 1890. This seems to be a very rare species. It was originally collected by Wright in Cuba, and the description was rather brief. Our specimen shows the following characters:

Teleutosori forming conspicuous often irregular ferruginous bunches which are often confluent; teleutospores elliptical oblong, only very slightly constricted, 19-26 x 28-40 μ , obtuse at the ends, apex slightly or not at all thickened, wall thick, golden brown; pedicel hyaline, slender, flexuous, often attached somewhat laterally, up to twice the length of the spore.

I am indebted to Dr. W. G. Farlow for comparing the specimen with the duplicate type in the Cryptogamic Herbarium of Harvard University.

PUCCINIA HALENIAE Arth. & Holway.—On *Gentiana calycosa* Griseb., Teton Mts., above Leighs Lake, Wyo., No. 1109 Merrill & Wilcox, July 26, 1901. The material agrees in every re-

¹Bot. Gaz. 34:19, 1902.

spect with the description and this is the first collection known on this host.

PUCCINIA OBSCURA Schreët.—A species not before observed by the author was collected on *Juncoides comosum* (E. Mey.) Sheld., at Ukiah, Oreg., by Mr. M. A. Crosby, Aug. 21, 1903.

U. S. Bureau of Plant Industry,
Department of Agriculture.

NEW SPECIES OF FUNGI FROM VARIOUS LOCALITIES.

BY J. B. ELLIS AND B. M. EVERHART.

DENDRODOCHYMIUM SEPULTUM E. & E.—On dead limbs of *Ulmus pubescens*. Natoma, Kansas, Jan. 8, 1904. (E. Bartholomew, 3139).

Sporodochia densely gregarious, orange-red, single or several smaller ones subconfluent, at first entirely covered by the epidermis which is raised into flatish pustules 1-2 mm. diam., soon ruptured, but still closely adherent, until the upper part entirely disappears, exposing the concave, pezizoid sporodochium. Sporules oblong, continuous, rounded at the ends, $10-15 \times 5-6 \mu$, hyaline or with a slightly yellowish tinge, terminal on fasciculate, thread-like basidia, 30-70 μ long, simple or furcately branched.

Nos. 2831 and 2899 (Bartholomew) on *Morus alba* are the same as this.

This may be the conidial stage of *Peziza cruenta* Schw.

SPELEOPOPSIS GRANDINEA E. & E.—On twigs of Maple, Riverside, Ill., March 1903. (E. T. & S. A. Harper, 796).

Perithecia minute, ($\frac{1}{2}-\frac{3}{4}$ mm.) thickly scattered, raising the bark into minute pustules but hardly rupturing it. Sporules elliptical or subovate, $15-20 \times 8-10 \mu$, on stout basidia as long as the sporules or a little longer.

Sphaeropsis clintonii Pk. is on decorticated wood and has sporules oblong-elliptical and a little shorter. *S. acerina* E. & B. (according to our specm.) is a *Haplosporella*.—perithecia in a cortical stroma, 2-6 in a stroma, sporules oblong.

HARKNESSIA (?) *TETRACERAE* E. & E.—On leaves of *Tetracera volubilis*, Nicaragua, 1903. (C. F. Baker, 3992.)

Amphigenous, apparently superficial, consisting of scattered, subhemispherical heaps of conidia which are ovate or elliptical, $12-15 \times 6-7 \mu$, hyaline at first, then brown with a light colored streak across the middle. The heaps of conidia are black and 1-1 $\frac{1}{2}$ mm. in diameter.

No perithecium was seen nor any cavity in the substance of the leaf from which the conidia were discharged, and in this respect the fungus does not agree with the generic character of either *Harknessia* or *Melanconium*.

HARKNESSIA RHOINA E. & E.—On dead leaves of *Rhus integrifolia*, still hanging on the tree. Claremont, Calif. Nov. 1903. (C. F. Baker, 3948).

Perithecia epiphyllous, scattered, medium size, ovate, base sunk in the substance of the leaf, upper half projecting with a round formation at the apex. Sporules elliptical, brown, subinequilateral, about $20 \times 10 \mu$, on filiform hyaline basidia, about 25μ long.

DIPLODIA FAIRMANI E. & E.—On dead limbs of *Menispermum canadense*. Lyndonville, N. Y. Oct. 1900.

Perithecia scattered, small ($\frac{1}{2}$ mm.), covered by the epidermis which is raised into little pustules and tardily ruptured. Sporules elliptical, uniseptate, constricted, brown, $20 \times 10 \mu$.

D. hypoxylodes E. & E. on the same host, has perithecia twice as large and sporules $12-16 \times 4-5\frac{1}{2} \mu$ and differs otherwise.

DOTHIORELLA TOXICA E. & E.—On dead limbs of *Rhus toxicodendron*, Riverside, Ill. March 1903. (E. T. & S. A. Harper 795).

Stroma acutely elliptical, 1 mm.- $\frac{1}{2}$ cm. long, bursting out through longitudinal fissures in the bark. Perithecia 2-6 in a stroma, $\frac{1}{8}-\frac{1}{2}$ mm. diam., white inside, with a papilliform ostium, basidia as long or longer than the sporules, which are broadly elliptical, 1-3 guttulate, hyaline, $12-20 \times 10-12 \mu$, or subglobose, $10-12 \mu$.

This differs from *D. rhoina* E. & E. in its much larger sporules and acutely elliptical stroma.

CEUTHOSPORA ABIETINA E. & E.—On dead limbs of *Abies balsamea*. Harraby, Lake Rousseau, Ontario, Canada, Sept. 1902. (E. T. & S. A. Harper, 792).

Stroma cortical, valsiform, circular, about 1 mm. diam., raising the bark into flattish pustules crowned with the small, black, papilliform ostium. Perithecia ovate, 2-6 in a stroma, membranaceous. Sporules cylindrical, straight, or nearly so, $6-7 \times 1\frac{1}{2} \mu$, on filiform basidia longer than the spores. The perithecia have their ostiola all united into a central one.

ASCOCHYTA CONFUSA E. & E.—On leaves of *Smilax hispida*. Yates, New York. Oct. 1900. (Dr. C. E. Fairman, 1512); and on leaves of *Smilax*, Harpers Ferry, W. Va. (E. T. & S. A. Harper, 926).

Spots amphigenous, round or irregular, 2-5 mm. diam., white, thin, almost transparent, with a narrow, dark-brown, raised border. Sporules ovate or elliptical, smoky-hyaline, $7-12 \times 3\frac{1}{2}-4\frac{1}{2} \mu$.

Ascochyta smilacis E. & M. Am. Nat. Dec. 1882, p. 1002, has sporules $11-22 \times 6-7 \mu$.

SEPTORIA SMILACIS E. & E.—On living leaves of *Smilax*, Harpers Ferry, W. Va. Aug. 1894. (E. T. & S. A. Harper, 924).

Spots amphigenous, round or subangular, ferruginous, lighter

in the center, with a narrow, slightly raised, darker border, 2-5 mm. diam., subconfluent, scattered over the green parts and also over brown, dead areas of the leaf. Perithecia amphigenous, innate in the substance of the leaf, 100-110 μ diam., the apex erumpent, broadly perforated and finally collapsing, cirrhi light horn-color. Sporules filiform, curved, faintly guttulate hyaline, 35-40 \times 1 $\frac{1}{2}$ -2 μ .

S. similacina Dur. & Mont. has no spots and differs otherwise.

MICROPERA VACCINII E. & E.—On old stems of *Vaccinium corymbosum*, Millers, Ind. Oct. 1903. (E. T. & S. A. Harper, 890).

Perithecia ovate-conic, flesh-color, subcuticular, erumpent in a small (1 mm.) black tubercle. Sporules arcuate, ends acute and hyaline, 40-50 \times 3 μ .

MYXOSPORIUM FUMOSUM E. & E.—On dead limbs of *Tilia americana*. River Forest, Ill. May 1903. (E. T. & S. A. Harper, 799).

Acervuli sunk in the surface of the inner bark, pale at first, becoming black, subcircinately arranged or scattered, discharging the conidia through a common opening and forming a depressed-conical mass of a sooty-black color on the surface of the bark. Conidia lunate, continuous, hyaline, abruptly contracted and subacute at the ends, 12-15 \times 4-6 μ ; much resembling those of *Marsonia populi* (Lib.).

GLOEOSPORIUM HETEROPHYLLUM E. & E.—On leaves of *Artemisia heterophylla*, near Claremont, Calif. Jan. 1. 1904. (C. F. Baker, 3982).

Acervuli sunk in the substance of the leaf on black spots 2-3 mm. diam. soon erumpent, subconical, black. Conidia oblong or clavate-oblong, guttulate, curved, hyaline, 14-18 \times 3-5 μ , ends obtuse.

Gloeosporium maculosum Sacc. on *Artemisia vulgaris* s on the stems, has smaller acicular conidia (18-10 \times 2 μ) and the acervuli are scarcely erumpent.

AMPHISPHEERIA GRANULOSA E. & E.—On old oak barrel staves lying on the ground. Lyndonville, N. Y. Sept. 1900. (Dr. C. E. Fairman).

Perithecia erumpent-superficial, globose or depressed-globose, granular-roughened, about $\frac{1}{2}$ mm. diam., quite evenly and thickly scattered; ostiolum minute, papilliform. Asci cylindrical, short-stipitate, 65-70 \times 4 μ , obscurely paraphysate. Sporidia uniseriate, oblong, uniseptate, scarcely constricted, pale-brown, slightly narrowed at each end, 10-12 \times 3-3 $\frac{1}{2}$ μ .

A. confertissima E. & E. has rather smaller perithecia and broader sporules. *A. conferta* Sz. has the perithecia seated on a radiate-fibrose mycelium but is otherwise much like this.

DIATRYPE NIGERRIMA E. & E.—On bark of Vitis, Glencoe, Ill. June 1903. (E. T. & S. A. Harper, 904).

Stroma superficial, effused, tubercular-roughened, black outside, white within, tubercles $1-1\frac{1}{2}$ mm. diam. or by confluence $\frac{1}{2}-1$ cm. Perithecia monostichous, globose or ovoid, crowded, small, $\frac{1}{4}-\frac{1}{3}$ mm. narrowed above into short neck terminated by the minute, subglobose ostiola which (8-10 together) rise through the surface of the stroma in little conical projections scattered indiscriminately over the stroma, both on and between the tubercles and much resembling small, black perithecia cleft across the top by a narrow slit through which the erumpent tuft of ostiola arise. Asci lanceolate, finally rounded at the top, p. sp. $25 \times 3-4\mu$. Sporidia 8 in an ascus, allantoid, smoky-hyaline, slightly curved, $8-10 \times 1-2\mu$.

VALSARIA MAGNOLIAE E. & E.—On dead limbs of Magnolia (cult.), London, Canada, Dec. 1903. (J. Dearness, 2082).

Stroma cortical, effused, blackening the inner bark. Perithecia sunk in the inner bark, then semi-erumpent, white inside, about $\frac{1}{4}$ mm. diam. scattered irregularly, or valsiformly aggregated, or seriate, soon deciduous. Asci cylindrical, subsessile, paraphysate, $80-100 \times 10-12\mu$ with the sporidia obliquely uniseriate or $100-150\mu$ with sporidia lying end to end. Sporidia uniseriate, oblong-elliptical, $18-23 \times 8-10\mu$, more or less constricted in the middle, brown.

This was accompanied by *Sphaeropsis magnoliae* E. & D.

PHYLLACHORA CINEREA E. & E.—On dead branches of Castalpa, London, Canada, Nov. 1903. (Dearness, 2087).

Stromata scattered, seated on the inner bark which is uniformly blackened, orbicular, $\frac{1}{2}$ mm. diam. or oblong $\frac{3}{4} \times 1\frac{1}{2}$ mm., cinereous within, disk fusco-cinereous, erumpent, flat, surrounded by the ruptured margin of the epidermis. Asci clavate-cylindrical, $80-100 \times 12-15\mu$, paraphysate. Sporidia biseriate, ovate-elliptical, hyaline $12-15 \times 5-7\mu$, continuous.

Most of the stromata contain only stylospores $8-10 \times 4-5\mu$, hyaline, continuous, oblong-elliptical or ovate-elliptical and then the fungus does not differ appreciably from *Phoma diatrypea* (C. & E.) Sacc. which is found on *Chiononthus*.

There are no true perithecia, the stroma containing merely ascigerous or sporuliferous cavities.

PEZIZA HAINESII Ell., Bull. Torr. Bot. Club, is hardly distinct from *P. semitosta* B. & C., the only difference being the color of the hymenium.

A NEW SPECIES OF PERONOSPORA.

W. A. KELLERMAN.

In the Spring of 1902 a Powdery Mildew was found, near Columbus, Ohio, on the False Mermaidweed, *Floerkea proserpinacoides* Willd. A quantity of the host plant remained in the collecting box over night, and when inspected the following day every specimen was found to be covered by the conidiophores uniformly distributed over the entire host. A few days later the same locality was visited but the unfavorable weather in the meantime proved disastrous to the fungus and unfortunately no additional material was obtained for thorough study of the parasite. A search the following Spring was likewise unsuccessful, but ample material was obtained in May of the present year and the investigation so far as carried on to date is here reported.

The host plants are dwarfed by the parasite though not distorted, and usually the entire plant harbors the fungus—all parts of the stem and leaves being evenly, though in the main rather sparsely covered by the conspicuous conidiophores. The shrivelled leaves and stems later however present a rather compact dull white layer of the richly branched and now collapsed conidiophores. Later infection is seen often restricted to the lower leaves of vigorous hosts but such cases are the exception rather than the rule.

The conidiophores in their mode of branching, size, etc., as well as the conidia and zygospores, are almost the exact counterpart of the well known and widely distributed *Peronospora parasitica* (Pers.) Tul., occurring on the various genera of the family *Cruciferae*. There is the very large and long main stem with the abundant and irregular branching near the apex. In the fungus on *Floerkea* however the main axis is relatively a little larger and the ultimate branchlets are also a trifle more elongated. The graceful curves of the latter are more pronounced in case of the *Floerkean* parasite and no small spurs or short tips leaving the branches at right angles, or presenting a runcinate appearance, were observed,—whereas in the *Peronospora parasitica* these are very often noticed.

It should be stated that *Peronospora parasitica* causes, in some cases at least, slight distortion of the host. Sometimes there is evident hypertrophy in local areas, and there is often an unusual mode of branching and anomalous aspect of the plant which is attacked—all of which suggests that there is some radical difference between this fungus and the one occurring on *Floerkea*. Moreover, the Mildew on the *Cruciferae* is often restricted to portions of the stem or limited areas of the leaves—never the case, so far as observed, relative to the *Peronospora* now under consideration.

A point to be emphasized is the distant location in a similar classification of the hosts of *Peronospora* parasites and that of the parasite of Flax-kill. Were there a close affinity between the plants attacked by these Mildews, the marked morphological similarity of the latter could well be interpreted as indicating a close genetic relationship. They might in such a case be with some degree of propriety treated as divergent species with as yet slightly perceptible morphological differentiation. But the facts noted seem to warrant the conclusion that we have to do with an assumed but wild species, and consequently the name *Peronospora floerkeae* is proposed.

Unfortunately the germination of the spores was not witnessed. Repeated efforts to determine whether a germ tube proceeded from the apothecium, or whether the limited outgrowths were unsuccessful, in one of two cases a sterility was met on the plant that was with some hesitation taken to be the germ tube and in both cases of course, as well as in sections of tissues examined, was detected. Consequently the fungus is referred to the genus *Peronospora* rather than *Plasmium*. It however as yet has been noted how the plant would bear the name of *Plasmium floerkeae*. The following diagnosis is given:

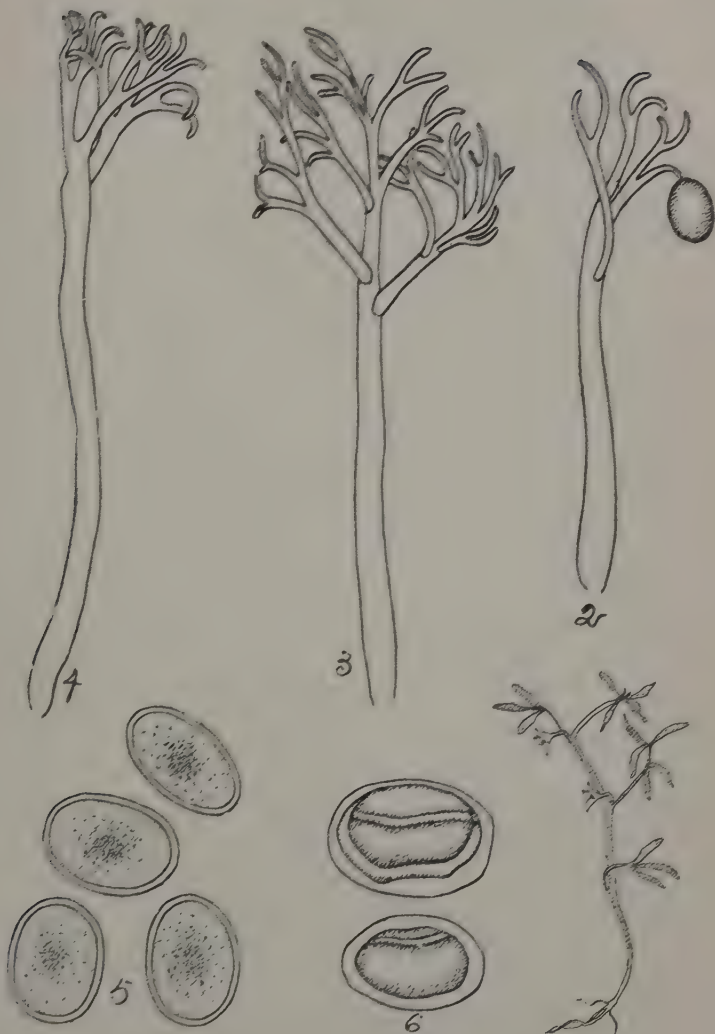
Peronospora floerkeae (Schaff.) n. sp. Conidiophores stout, pale to white, single below and elongated, branched and profusely branching above the branches being subterminal, sometimes dichotomous, the lower elongate. The ultimate branches more or less filiform, sometimes also short, elongate and straight above; the branches are very much numerous and the main axis of the conidiophore, the shorter branches being very sparse and bearing long, slender and at sub-right angles a 2-3 x 15 μ germinal rudiment. Conidia numerous, subglobose, 20 μ in diameter, the wall light brown and smooth or slightly rugose.

On *Flaccia procumbens* Vahl. Columbia, Ohio, May 1902 and 1904.

Strongly resembles Peronospora parasitica (Pers.) Tul. but more luxuriant, bearing the ultimate branches longer, usually branching but are otherwise differing. The host which does not belong to *Flaccia*, as do all the hosts of *Peronospora parasitica*, nor to a closely related family.

EXPLANATION OF PLATE 74

Fig. 1. *Flaccia procumbens* attacked by *Peronospora floerkeae* which infects it throughout. Figs. 2, 3, 4. Conidiophores of *Peronospora floerkeae*. Fig. 5. Four conidia. Fig. 6. Two conidia.



PERONOSPORA FLOERKEAE KELLERMAN NOV. SP.

CULTURES OF PUCCINIA THOMPSONII HUME.

W. A. KELLERMAN.

In default of guiding clues random cultures were made in 1903 with the teleutospores of *Puccinia thompsonii* Hume, a widely occurring rust on *Carex frankii*, but no success attended the attempted inoculations. Suspecting a possible connection with the *Aecidium* of the Elder, *Sambucus canadensis*, and noting the strong morphological resemblance between this species and the forms previously described as *Puccinia bolleyana* by Saccardo (1891) and *Puccinia atkinsoniana* by Dietel (1897),¹ attempted inoculations were renewed the present season.

Partially successful results were at first discredited in spite of the strong suspicion entertained that the alternate form would prove to be none other than Schweinitz's *Aecidium sambuci*. At this time I communicated my suspicion to Dr. Arthur, also asking for good culture material in case he had any to share with me. He kindly returned answer at once, stating that *he had entertained such an opinion* for nearly two years as suggested above though he had no suitable teleutospores for inoculation.

I was fortunate enough to find a small quantity of the Rust that had been exposed all winter, in the vicinity of Columbus. Proceeding with great care, most satisfactory results were obtained in a few days, when several vigorous inoculated host plants of *Sambucus canadensis* were rendered fairly yellow with abundant spermogonia. In the usual time the plants exhibited the characteristic Elder aecidia—even the infection of petioles and stems causing distortions resulted from the inoculations. The evidence could not be denied by the most skeptical and I can therefore with confidence assert that *Puccinia thompsonii* Hume is a synonym of *P. sambuci* (Schw.) Arthur.

It is interesting to note, after all, that the description given by H. Harold Hume in the *Botanical Gazette*, 29:352, May 1900, differs in no marked or striking degree from those of *P. bolleyana* and *P. atkinsoniana*. For example, the teleutospores are said to be "oblong clavate, 48-68 x 15-24 μ ," whereas in *P. bolleyana* they are given as "clavate-oblong, 45-55 x 20-25 μ ," and in *P. atkinsoniana* as "mostly clavate, 40-60 x 18-28 μ ." It is said [l. c.] that this species, *P. thompsonii*, "somewhat resembles *P. bolleyana* Sacc., but differs from it in the more scattered, larger, oblong, lighter-colored sori and the somewhat longer and narrower spores." Doubtless the slight discrepancies in the three descriptions are referable to conditions or phases of a temporary character or minor importance.

¹These were pronounced by Arthur to be one and the same species and the name *Puccinia sambuci* (Schw.) Arthur was applied. Cfr. Bot. Gaz. 35:15. Jan. 1903.

For convenience of reference the accepted name and synonymy may here be summarized.

PUCCINIA SAMBUCCI (Schw.) Arthur. Bot. Gaz. 35:15. Jan. 1903.

Aecidium sambuci Schweinitz. Trans. Am. Phil. Soc. Philadelphia, 4:294. 1834.

Puccinia bolleyana Saccardo. Am. Mon. Micr. Jour. 10:1 (fig.) Aug. 1889. Sylloge Fungorum, 9:303 (descr.) 15 Sept. 1891.

Puccinia atkinsoniana Dietel. Bull. Cornell Univ. (Science), 3:19. June 1897.

Puccinia thompsonii Hume. Bot. Gaz. 29:352. May 1900.

ELEMENTARY MYCOLOGY.

(Continued.)

W. A. KELLERMAN.

ORIGIN OF LIVING MATTER. — The doctrine that individuals invariably arise from previously existing organisms was scientifically established the latter part of the century just closed. It had been previously supposed that some of the simple plants and animals, even some of the more complex organisms also, arose by "spontaneous generation"; *i. e.* that they were formed, often in great abundance, under favorable circumstances, directly out of inert or lifeless (mineral) matter. The experiments of some investigators seemed to prove the truth of such an hypothesis. But the classic work of Pasteur, and especially the crucial experiments of Tyndall, and Huxley, completely demonstrated the fallacy of such supposed spontaneous origin. They showed that new individuals appeared only when there were present the "germs," ova, spores, or seeds, derived from parent forms. The continuity of life is a proposition tenable not only for the existing races of plants and animals, but it is in the same manner demonstrated as well for the entire period of organic existence on our globe from early geologic time. Exactly when or how in archæan time living organisms began, no definite knowledge is at hand and no satisfactory hypothesis has been promulgated. Modern scientific research has clearly indicated that the old view of a radical (fundamental) difference between what is termed mineral or "inert" matter and organic or so-called "living" matter, is irrational. It is, moreover, highly probable that living matter, that is to say, organisms — a common though indefinite synonymous term is "*life*" — began to exist in an orderly natural way. Neither is it a gratuitous assumption, or fallacy, groundless, that organisms may have been in existence previous to the time when our globe was yet untenable by even the lower plants and animals. The

facts lending support to this view are, that some organisms are to-day flourishing in media of great extremes of temperature — for example in thermal springs and in arctic regions. Again, seeds subjected for a time to a temperature of 250° C. below zero do not all lose their vitality and they doubtless are more sensitive to an untoward environment than less complex structures would be; but this is approximately the coldness of interplanetary space, and would suggest that ultra-imported living matter might have been the starting point for mundane organic existence.

VEGETATIVE REPRODUCTION. — Whatever the facts may prove to be in regard to the origin and continuity of living matter, the orderly (natural) rôle of multiplication of individuals at the present time is recognized and the processes involved in reproduction are, in a measure, understood. Leaves or portions of leaves of Begonia are placed in moist sand, whereupon they develop buds and shoots; and thus the florist obtains a new set of individual plants. Willow twigs, elder, etc., partially covered with moist soil may grow into so-called new individuals. Cuttings of very many ornamental or useful plants are used to provide the desired number of new individuals. Fragments of roots or portions of stems may in some cases be similarly used. In other cases such structures as runners, stolons, offsets, and bulbs are employed. The “artificial” multiplication of useful plants, particularly the various kinds of fruit trees, is secured by means of “budding” and “grafting,” *i. e.* by the use of buds or twigs taken from the particular individuals or kinds which it is desired to perpetuate, and inserting on seedling plants, readily grown in great quantities, of similar (or closely related) species. In nature we see extensive vegetative multiplication by “sprouts” that develop from adventitious buds arising on roots; runners, stolons, or bulbs, may develop new plants at varying distances from the parent. Another mode of rapid and extended multiplication is seen in case of creeping underground stems which are called *rhizomes*; a large number of the Grasses and many other perennial herbaceous plants, including some of the Ferns, are common illustrative examples. The unicellular plants, as some of the Algae, the Bacteria, and many of the Fungi, multiply by a division of the cell into two equal parts, each of which is therefore a new individual (Fig. 2). The Yeast-plant increases by a process that is called “budding.” (Fig. 4.) Here a small portion grows out from the parent cell, gradually enlarges and exhibits the usual elliptical shape; presently it may give rise to others and ultimately all may become detached. In some of the filamentous Algae the cells divide repeatedly, and then fragments of the parent individual separate and these behave thereafter as new and independent plants. Larger or smaller portions of the ordinary or specialized vegetative cells in plants of still higher groups become detached and these continue an independent exist-

ence. The parts detached may be very small and simple in structure or they may be more complex and even highly differentiated. Illustrative examples are "*soredia*" in the Lichens, the "*gemmae*" in Liverworts and Mosses, "*hibernacula*" in Water Milfoil, *bulblets* in many plants, also *viviparous* inflorescences. The term *vegetative reproduction* is applied to all of the enumerated cases; it is the single cell, or the mass of cells, which is directly concerned in the vegetative processes of nutrition and growth that—still retaining (at least in large part) the normal functions—gives origin to the new individuals.

SPORE REPRODUCTION.—All or the great majority of cells in plants may be said to be nutritive in function; that is, they are or have been concerned, directly or indirectly, in the ordinary processes of nutrition and growth. But a cell may become physiologically differentiated for quite another purpose; it may lose its nutritive function entirely and all of its energies become set to the direct or indirect production of a new individual. Such a cell, having taken on a reproductive function, is called a *spore*. An example common and easily examined is furnished by the Leaf Mildew of the Lilac. The elongated vegetative cells (hyphae) creep over the surface, sending suckers (called *haustoria*) into the epidermal cells of the host for nourishment. Presently some of the hyphae grow erect and near the end of such an upright *conidiophore* (as it is termed) constriction of the wall takes place; this deepens and finally the terminal portion is wholly abstricted; such a reproductive cell, or a sexual spore, is called a *conidium*

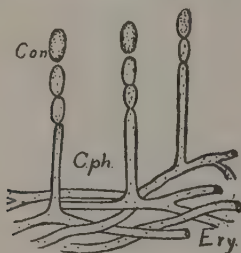


FIG. 7.

FIG. 7. Hyphae of a Leaf Mildew (*Ery.*), with conidiophores (*Cph.*) abstricting conidia (*Con.*). The fungus grows on the surface of the leaf.

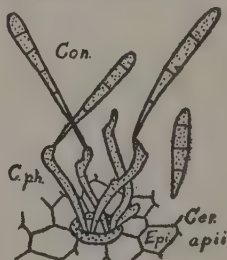


FIG. 8.

FIG. 8. Hyphae (*Cph.*) of the Celery Leaf-spot fungus, *Cercospora apii* (*Cer. apii.*), emerging through the stomate of a leaf and bearing Conidia (*Con.*).

(Fig. 7). Other conidia are successively abstricted from the same conidiophore, which is true not only for this species but also for all the Leaf Mildews. In case of some of the Fungi only one conidial spore is formed by each conidiophore. In the Grape Mildew (Powdery Mildew) the conidiophores emerge from the stomate of

the leaf; they branch extensively and on each ultimate tip a conidium is produced (Fig. 5). Other forms of conidiophores and conidia are found in various fungi (as "White Rust" of Shepherd's purse (Fig. 14) : and the Leaf-spot, or *Cercospora* of Celery (Fig. 8). In case of the large group of Fungi to which the Toadstools belong, the spores are borne on little pedicels (called *sterigmata*) that arise from a large cell which is called a basidium

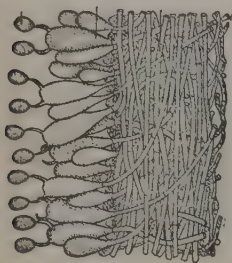


FIG. 10.

FIG. 10. A small section from the gill of an Agaric, or Mushroom, showing the hyphæ that terminate in Basidia which bear the spores.



FIG. 11.

FIG. 11. Hyphæ of the Mucor, or the common Black Mould, producing conidiophores that bear the conidia in receptacles at the apex.

(Fig. 10). Quite a different type of spore formation is seen in the common Black Mould. Here the sporophores are erect and develop within the enlarged terminal cell a multitude of conidia (Fig. 11). In other cases, for example, the fresh-water Alga called *Oedogonium*, the entire mass of protoplasm in a cell becomes a spore, develops cilia, *i. e.*, protoplasmic lashes or locomotive organs, and after escaping from the ruptured wall of the parent cell, swims about for a short time previous to permanent settlement and development into a filamentous form like the individual from whence it sprang. In case of *Ulothrix*, another of our common Algae, the protoplasm in a single cell becomes fragmented into two or many ciliated individuals, or swarm spores, which likewise are very active immediately upon their escape. When they come to rest their cilia disappear and soon a filament of the usual type is developed (Fig. 12).

SEXUAL REPRODUCTION.—It is not always the case that the single reproductive cell develops into the usual parent form; instead, it often unites with another like or unlike cell and the result of this union is the spore—the so-called *sexual-spore*, which then at once, or after a resting period, gives rise to the new individual. The essential feature of this process, sexual reproduction, is the fusion of the two nuclei of the *gametes*—as the two conjugating masses are called. The mechanism of the process is various in various groups of plants, but only a few illustra-

tions need be here given. For example, the common Black Mould, or *Mucor*, besides producing conidial spores is sometimes seen

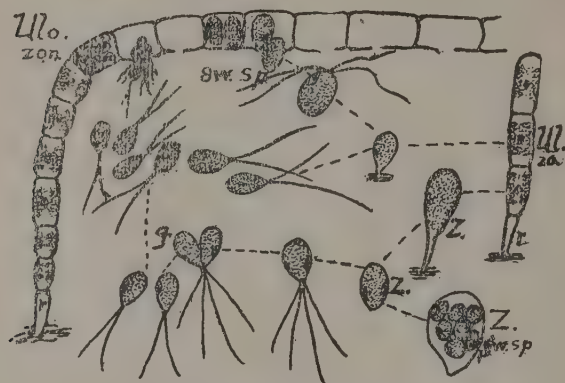


FIG. 12.

FIG. 12. *Ulothrix zonata*, a common fresh-water Alga, attached by a rhizoid (r.), producing zoospores. The large swarm spores (sw. sp.) have four cilia. The smaller swarm spores have two cilia; in some cases they are gametes (g.) *i. e.* fuse to form a zygospore (z.). The zygospore may in turn produce swarm spores which grow into the usual form of the species; or the zygospore may develop, as many swarm spores do, directly into a plant like the ordinary filamentous form (*Ul. zo.*).

to produce sexual spores as follows. Two more or less differentiated hyphae give rise by the stimulus of contact to swollen portions each of which near the point of contact forms a septum

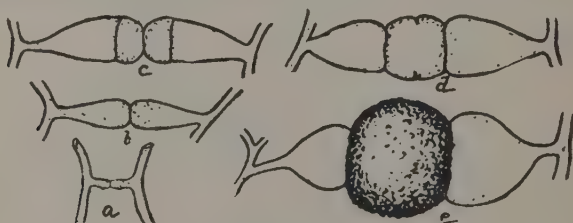


FIG. 13.

FIG. 13. Zygospore formation in the *Mucor*, or common Black Mould. An early stage of the gametophores is shown at a; the cells are becoming enlarged at b, and at c the gametes are formed; fusion is shown at d, and the mature zygospore is represented at e.

thus producing the two gametes. The common wall of these cohering cells becomes absorbed and the contents fuse into one mass and thus a single spore, *i. e.*, a sexual spore, is formed (Fig. 13).

To this is given the name of *zygospore* (yoke spore) because formed of two similar gametes. In case of some of the Mildews, the Albugo ("White Rust") of the Shepherd's purse, etc., the sexual process differs from the above mainly in the fact that the two parts or organs producing the gametes are quite unlike each

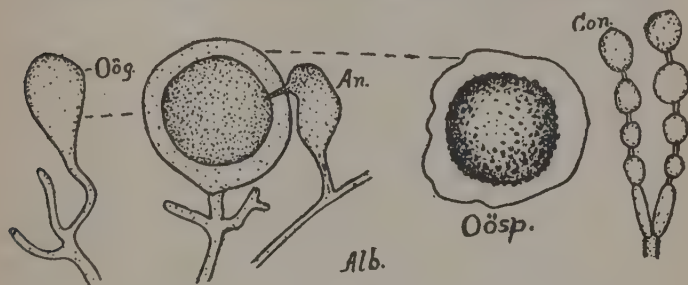


FIG. 14.

FIG. 14. Oospore formation in the so-called "White Rust" of the *Conocifer*, *Albugo candidus* (Alb.). Conidia (Con.) of this species are also shown at the right. An early stage of the Oogonium (Oog.) is figured, followed by its fertilization by the Antheridium (An.). The mature Oospore is represented (Oosp.).

other (Fig. 14). The larger, or *egg-cell*, is designated as the *oogonium*, and the smaller one, or *sperm-cell*, is called the *antheridium*. The sexual spore in this case is called the *oospore*. The spore may have, in case of other groups, a mass of adjacent cells more or less completely enclosing it, developed simultaneously with the fusion of the nuclei or immediately before or after, the resulting structure suggesting a fruit — and hence such spores are called *carpospores*.

THE EVOLUTION AND PURPOSE OF SEXUALITY.—An examination of the probable origin of sexual reproduction in the vegetable kingdom may possibly indicate its purpose or advantages. Reference has already been made to swarm-spores — protoplasmic bodies destitute of a cell wall and furnished with a cilium, or two or more cilia, that serve the purpose of locomotion through water. When these zoöspores escape from the parent cell they swarm vigorously for an hour or more and then come to rest. Now it might happen occasionally in such apparently aimless motions that two of the cells would collide, perhaps fuse, and thenceforth act as a single cell; such has actually been observed to take place. That it merely "happens" so is indicated by the fact that most of the cells do not so collide and fuse, but each nevertheless develops independently into a new plant. If now anything in the way of vigor or other qualities proves valuable in such fortuitous union, the union of energies (that could never be *absolutely identical* in two separate masses!) might be a great

advantage, its results would be a positive gain to the race; it would therefore likely be perpetuated and the process become (by "selection") fixed and common. The fact that in some plants fusion of "swarm spores" is the rule, and that in the higher plants the gametes are brought together by aid of highly specialized structures suggests the correctness of this interpretation of the origin, and at the same time is probable proof of the advantages of sexual union.

VIEW POINTS IN SCIENCE.—The countless multitudes of plants and the endless variety in form and structure baffles an adequate comprehension of the Vegetable Kingdom. To understand, even in a general way, our common herbs, shrubs, and trees, we need to know their gross and minute structure, the relation and derivation of the organs and other specialized structures, their mode of living or physical and chemical energies displayed in growth, their relation to the environment in which they live, their reaction when untoward exigencies arise, their individual and their race development. Any one of these several *View Points* may for a time be made prominent; and a mass of knowledge—often more or less crude and quite insufficient—has already accumulated relative to each, and for which a technical designation is employed. Naturally the first phase to engage attention is the mere external form, and examination of the parts or organs presented—hence the term *Gross Anatomy*. With the aid of a microscope the minute anatomy can be determined satisfactorily so far as this instrument is able to reveal it. The masses of various kinds of material of which the organism is composed are called tissues; therefore the word *Histology* is used—the Greek word *histos* meaning tissue. But the various kinds of tissue in the plant-body and the organs presented may be studied with reference to their origin and mode of differentiation, and especially as to their fundamental relationship,—such a study is called *Morphology*. It includes an examination of the tissues and organs in the act of development and differentiation. It should therefore give us a correct interpretation of the parts of a plant and a clue to its meaning as a whole. When this developmental history is traced from the egg and carried through the remarkable changes in the early stages it is called *Embryology*. Structures that in the adult or mature form may be quite different in appearance or function may have been derived from the same, i. e. fundamentally corresponding, parts of the organism; they would then be said to be *homologous*. Thus the floral leaf—*c. g.* the stamen—is homologous with the foliage leaf; the panicle—*c. g.* the head of oats—is homologous with the Sunflower; the Fern leaves with their sporangia ("fruit") are homologous with the stamen and pistil in the Rose; the spore in the Lower plants is homologous with the cell from which the embryo in the seed of the higher plants develops. *Homology*—as this phase of

science is called — suggests a fruitful field of study in interpreting the apparently chaotic multitude of forms and structures.

PHYSIOLOGY.—The Point of View may not be primarily in relation to structure, but rather to the display of energy in the organism—in other words—its *Physiology*. This branch of science is therefore immediately concerned with such problems as—how the organism secures materials for food, the manner of breaking up chemical compounds into their elements and the recombination of these to form organic material, the various changes indicated by such terms as digestion, assimilation, respiration, as well as the protoplasmic reactions of all kinds displayed by the organism and the work it performs. Physiology has primarily to do with function rather than structure. But an organism may be studied as a whole or as a unit of energy, rather than in reference to the several phases of more or less intricate action displayed within the individual; its reaction to the medium in which it lives, its adaptation possibly to a slowly changing, or perhaps a more or less unfavorable environment, its behavior when untoward exigencies arise, or when other individuals or other objects or any external phenomena directly affect it;—these and other related topics are included under the head of *Ecology*. Ecological relations of plants are most intimately connected with their physiology—in fact Ecology might be considered one of the subdivisions of Physiology.

PHYTOPATHOLOGY.—Yet another relation should be mentioned, namely, that under which the untoward circumstances injuriously affect the individual. For example, a parasitic fungus may attack a leaf, or fruit, or stem or root, and interfere with its normal functions—ultimately, it may be, destroy the part or even the whole plant; a soil too rich in plant food or with deficient amount of one or more of the necessary food elements, or with insoluble compounds, may prove disastrous to the plant; or, again, mechanical influences may injuriously interfere with growth or cripple the organism; in all such cases pathological, or so-called diseased, conditions ensue. A study of the plant with special reference to such phases has developed a subdivision of Botany to which the name of *Phytopathology* has been appropriately given. When it is recalled that there is an enormous number of parasitic organisms—Rusts, Smuts, Leaf Mildews, Fruit-rots, Blights—that attack the cultivated plants, decreasing sometimes annihilating the crops, the practical importance of this branch of botany may be realized. The parasitic fungus may be microscopic in size and its presence known only by its disastrous effects; it may be wholly concealed within the tissue of the host—not always breaking through the epidermis even to liberate its spores; it may grow on the superficial cells though sending suckers into the epidermis of the host-plant for nourishment; it may be very simple in structure, even unincellular, or it may display consid-

erable differentiation; it may be polymorphic—that is, produce different kinds of spores in the different stages presented in the course of its life-cycle; the vast quantity of any one host-plant cultivated, as Wheat, Maize, the Potato, the Apple, the Grape, may afford practically unlimited food for the attendant parasite and so the destruction wrought would be almost incalculable. These facts not only indicate the importance of Vegetable Pathology, or Phyto-pathology, but suggest the very intimate relation of this subject with that of *Mycology*. The two can in fact be advantageously kept in mind in the future paragraphs of this elementary treatise.

INDEX TO NORTH AMERICAN MYCOLOGY.

Alphabetical List of Articles, Authors, Subjects, New Species and Hosts, New Names and Synonyms.

W. A. KELLERMAN.

(Continued from page 143.)

POLYPORACEAE of North America—VI. The Genus *Polyporus*. William Alphonso Murrill. Bull. Torr. Bot. Club, 31:29-44. Jan. 1904.

POLYPORELLUS Karst., *syn. of Polyporus Mich. q. v.*

POLYPORELLUS *polyporus* Murrill, *syn. of Polyporus polyporus q. v.*

POLYPORUS Mich. [established by Micheli 1729; synonyms: *Polyporellus* Karst., *Caloporus* Quelet, *Leucoporus* Quelet, *Cerioporus* Quelet. Murrill.]. Bull. Torr. Bot. Club, 31:29. Jan. 1904.

POLYPORUS *arculariellus* Murrill n. n. [*Favolus curtisii* Berk.] Bull. Torr. Bot. Club, 31:36. Jan. 1904.

POLYPORUS *brumalis* Fr., *syn. of Polyporus Polyporus q. v.*

POLYPORUS *catalpae* von Schrenk n. sp. and *P. versicolor* [as diseases of Catapa]. U. S. Bureau Forestry Bull. 37:58. 1902.

POLYPORUS *cowellii* Murrill n. sp., growing on decayed wood. Bull. Torr. Bot. Club, 31:39. Jan. 1904.

POLYPORUS, Key to the North American Species. [Murrill.] Bull. Torr. Bot. Club, 31:30-2. Jan. 1904.

POLYPORUS *luridus* B. & C., *syn. of Polyporus polyporus q. v.*

POLYPORUS *maculosus* Murrill n. sp., on wood. Bull. Torr. Bot. Club, 31:41. Jan. 1904.

POLYPORUS *polyporus* (Retz) Murrill n. n. [*Boletus polyporus* Retz, *B. brumalis* Pers., *B. fasciculatus* Schrad., *Polyporus brumalis* Fr., *P. luridus* B. & C., *Polyporellus brumalis* Karst., *Polyporellus polyporus* Murrill.] Bull. Torr. Bot. Club, 31:33. Jan. 1904.

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- TUBERCLES, Root, of Bar Clover (*Medicago denticulata* Willd.) and Some other Leguminous Plants. G. J. Pierce. *Proc. Calif. Acad. Sci.* 1902, Ser. 3, 10:295-328. 1902..

- TYLODON *friesii* Banker n. n. [*Radulum pendulum* Fr.] Bull. Torr. Bot. Club, 29:441. July 1902.
- ULMUS, *see Elm* . . .
- UNPUBLISHED work, *see Fungi, An interesting* . . .
- URNULA *terrestris* (Niessl.) Sacc. [identical with *Melachroia xanthomela* and following Schroeter must be called *Podophacidium xanthomelan*. Kupfer.] Bull. Torr. Bot. Club, 29:143. March 1903.
- Discard "*Uredineae, Cultures of, in 1903. J. C. Arthur. Bot. Gaz. 35:10-23. Jan. 1903*"; and substitute the following:
- UREDINEÆ, Cultures of, in 1902. J. C. Arthur. Bot. Gaz. 35:10-23. Jan. 1903.
- UREDINEÆ, Cultures of in 1903. J. C. Arthur. Jour. Mycol. 10:8-21. Jan. 1904.
- UREDINEÆ, New Species, — III. J. C. Arthur. Bull. Torr. Bot. Club, 31:1-8. Jan. 1904.
- UREDINEOUS Culture Experiments, Index to, *see Index* . . .
- UREDINEOUS Infection Experiments in 1903. W. A. Kellerman. Jour. Mycol. 9:225-238. Dec. 1903.
- UREDINOPSIS *copelandi* Syd. n. sp., in *frondibus vivis Athyrii cyclosori*. Ann. Mycolog. 2:30. Jan. 1904.
- UREDO *copelandi* Syd. n. sp., in *foliis vivis Arctosaphyli patulæ*. Ann. Mycolog. 2:31. Jan. 1904.
- UREDO *pasadenæ* Syd. n. sp., in *frondibus vivis Gymnogrammis triangularis*. Ann. Mycolog. 2:31. Jan. 1904.
- UREDO *superior* Arthur n. sp., on *Fimbristylis spadicea* Vahl. Bull. Torr. Bot. Club, 31:5. Jan. 1904.
- UROMYCES *hellerianus* Arthur n. sp., on *Cayaponia racemosa*. (Sw.) Cogn. Bull. Torr. Bot. Club, 31:2. Jan. 1904.
- UROMYCES *lespedezæ-procumbentis* (Schw.) Curt. [Successful cultures — *Aecidium leucospermum* B. & C. obtained—with teleutospores from *Lespedeza capitata* Mx. applied to same host. Arthur.] Jour. Mycol. 10:14. Jan. 1904.
- UROMYCES *pavoniæ* Arthur n. sp. on *Pavonia racemosa* L. Bull. Torr. Bot. Club, 31:1. Jan. 1904.
- UROMYCES *phaseoli* (Pers.) Wint. [Successful cultures — spermogonia and æcidia obtained—with teleutospores from *Strophostyles helvola* (L.) Britt. (*Phaseolus diversifolius* Pers.) applied to same host. Arthur.] Jour. Mycol. 10:16. Jan. 1904.
- UROMYCES *solidagini-caricis* Arthur n. n. [*Uromyces periginus* Halst. (?)] Jour. Mycol. 10:16. Jan. 1904.

- UROMYCES solidagini-caricis Arth. n. n. [Successful cultures — spermogonia and æcidia obtained — with teleutospores from *Carex varia* applied to *Solidago canadensis* L., *S. serotina* Ait., *S. flexicaulis* L., *S. cæsia* L. Arthur.] Jour. Mycol. 10:16. Jan. 1904.
- USTILAGO calcara Griffiths n. sp., on *Bouteloua breviseta* Vasey. Bull. Torr. Bot. Club, 1:85. Feb. 1904.
- USTILAGO lycuroides Griffiths n. sp., on *Lycurus phleoides* H. B. K. Bull. Torr. Bot. Club, 31:84. Feb. 1904.
- USTILAGO scolochloæ Griffiths n. sp., on *Scholochloa festucacea* (Willd.) L. Bull. Torr. Bot. Club, 31:86. Feb. 1904.
- USTILAGO strangulans Tssat. [Abundant on *Eragrostis neo-mexicana* in Arizona, Griffiths.] Bull. Torr. Bot. Club, 31:87. Feb. 1904.
- VALSA (?), old, host to *Helotium parasiticum* E. & E. n. sp. Jour. Mycol. 9:165. Octo. 1903.
- VALSELLA minima Niessl. [Description from specimen on *Sambucus canadensis*; Ellis & Everhart.] Jour. Mycol. 9:167. Oct. 1903.
- VERRUCARIA fulva Cummings n. sp., on rocks and on moss. Alaska, Har. Exped. 5:71. Pl. VII. 1904.
- VIOLA langsдорffii Fisch., see *Puccinia fergussoni* B. & Br. Bull. Torr. Bot. Club, 31:2. Jan. 1904.
- VIOLA orbiculata Geyer, host to *Puccinia canadensis* Arthur n. sp. Bull. Torr. Bot. Club, 31:2. Jan. 1904.
- WEST American Smuts, see *Smuts, Concerning some* . . .
- WESTERN Yellow Pine, see *Pinus ponderosus* . . .
- WHETZEL, Herbert H. A New Method of Mounting superficial Fungi. Jour. Mycol. 9:218-9. Dec. 1903.
- WILCOX, E. Mead. A leaf-curl Disease of Oaks. [Taphrina coerulescens.] Ala. Agr. Exp. Sta. Bull. 126:171-187. Oct. 1903.
- WILLIAMS, T. A. Lichens. [List of 10 species.] Pl. Bakerianæ, 2:30-1. 25 March 1901.
- WILT Disease, see *Disease, Wilt* . . .
- WILT, see *Tobacco Wilt, The Granville* . . .
- WITHERTIP and other Diseases of Citrus trees and fruits, see *Diseases, Withertip and* . . .
- WOOD, decaying, host to *Polyporus cowellii* Murrill n. sp. Bull. Torr. Bot. Club, 31:40. Jan. 1904.
- WOOD, host to *Polyporus maculosus* Murrill n. sp. Bull. Torr. Bot. Club, 31:41. Jan. 1904.
- WOODS, A. F. Bacterial Spot, a new disease of Carnations. Science, N. S. 18:537-8. 23 Oct. 1903.

- WOODWORTH, Elizabeth Willis. The Chantarelle. [*Cantharellus cibarius*. Popular.] *Birds and Nature*, 14:143. Pl. 600. Oct. 1903.
- WOODWORTH, Elizabeth Willis. The Glistening Coprinus. [Popular. *C. micaceus*.] *Birds and Nature*, 14:235. Pl. 616. Dec. 1903.
- WOODWORTH, Elizabeth Willis. The Masked Tricholoma. [*T. personatum*. Popular.] *Birds and Nature*, 14:191. Pl. 608. Nov. 1903.
- ZYGADENUS elegans, host to *Puccinia grumosa* Syd. et Holw. n. sp. *Monogr. Uredin.* 1:641. 1 Nov. 1903.

NOTES FROM MYCOLOGICAL LITERATURE. XI.

W. A. KELLERMAN.

THE ARTICLES PUBLISHED IN THE BULLETIN DE LA SOCIÉTÉ MYCOLOGIQUE DE FRANCE, tome XX, 1^{er} Fascicule, are as follows: Boudier, Sur un nouveau genre et une nouvelle espèce de Myriangiacées le *Guilliermondia saccoboloides*, Note sur une forme stérile du *Dryodon erinaceum*; Vuillemin, Le *Spinalia radians*, g. et n. sp. et la Série des Dispirées; Prillieux, sur la déhiscence des périthèces du *Rosellinia necatrix* (R. Hart.) Berlese; Souché, Sur la *Cantharellus cibarius* Fr., forme *C. neglectus*, et Enquête sur les cas d'empoisonnements par des champignons.

CHARLES THOM DESCRIBES A NEW SPECIES OF THELEPHORACEAE. — *Craterellus taxophilus* — in the March No. of the Botanical Gazette, 1904. The fruiting body is only 14-18 mm. high and grows on moist rotten leaves and twigs under *Taxus canadensis*; collected in Fall Creek gorge, Ithaca, N. Y., November 1903.

S. KUSANA PUBLISHES NOTES ON THE JAPANESE FUNGI, Uredinæ on *Sophora*, in the Botanical Magazine, 18:1-6, Pl. I, 20 Jan. 1904, calling special attention to two species of *Uromyces* (*U. truncicola*, and *sophorae-japonicae*) on *Sophora japonica*. This host is a native species of Japan, but widely cultivated as an ornamental tree, and should these Rusts attack our trees as vigorously as they do in Japan, their beauty and value would be seriously encroached upon. The first species named causes the canker growth of the tree, but the second attacks only the foliar organs.

FLORA, 92. BAND, JAHRGANG 1903, contained important mycological articles as follows: S. I. Keno, Die Sporenbildung von *Taphrina*-Arten; Const. von Deckenbach, *Coenomyces consuens* nov. gen. nov. spec. Ein Beitrag zur Phylogenie der Pilze; W. Rothert, Die Sporen Entwicklung bei *Aphanomyces*.

F. D. CHESTER AND C. O. SMITH REPORT IN BULLETIN 63, DEL. AGR. EXP. STA. Feb. 1, 1904, under Notes on Fungous Diseases in Delaware, some inoculation experiments with spores from pure cultures of *Colletotrichum lindemuthianum* applied to Cucumber, Pumpkin, Squash, Muskmelon, Watermelon, and Bean, successful on the last host only. Their conclusion is therefore opposed to that of Dr. Halsted (cf. N. J. Exp. Sta. Rep. 1893, 347-353) who seemed to prove that *C. lindemuthianum* and *C. lagenarium* were interchangeable on the fruits of bean and watermelon, these authors regarding the fungi under consideration as two distinct species.

BRUCE FINK HAS FURNISHED DESCRIPTIONS WITH SOME ILLUSTRATIONS, of twelve varieties of *Cladonia fimbriata* which are either rare in North America or of their distribution little is known. See the Bryologist, 7:21-7, Pl. III, March 1904. Dr. Wainio examined the abundant material furnished by Professor Fink, and the varieties are presented according to that lichenologist's Monograph of the genus *Cladonia*. By giving figures of our more common forms with the descriptions, says the author, it is hoped that the student of Lichens will not confuse the varieties and assign them to other species so frequently as has been done in the past.

FL. TASSI PUBLISHES SEVERAL NEW GENERA AND MANY NEW NAMES, many of them pertaining to North American Sphæropsiaceae, in *Bullettino del Laboratorio ed Orto Botanico di Siena*, Anno Quinto, Fascicolo I-III, 1902, under the title, I generi *Phyllosticta* Pers., *Phoma*, Fr., *Macrophoma* (Sacc.) Berl. et Vogl. e i loro genri analoghi, giusta la legge d' analogia. The new genera proposed are as follows: *Phyllostictella*, *Ascochyrella*, *Microdiplodia*, *Diplodinula*, *Stagonosporella*, *Stagonosporina*, *Phyllohendersonia*, *Hendersonulina*, *Camarosporellum*, *Hyalothyridium*, and *Gymnosphaera*.

ANOTHER DISEASE OF TOBACCO IS REPORTED BY F. L. STEVENS AND W. G. SACKETT, under the name of the Granville Tobacco Wilt, in N. C. Agr. Exp. Sta. Bulletin 188 (Sept. 1903) being a preliminary report, describing the case as studied in Granville County, N. C., illustrated by fifteen figures of the affected host and suggesting Bacteria as the cause of the trouble, the disease said to have spread largely through infected soil.

MYCETES SICULI NOVI DAGLI ATTI DELL' ACCADEMIA GIORNIA DI SCIENZE NATURALI IN CATANIA (Ser. 4, vol. XVII), by Dr. G. Scalia, contains descriptions of about a dozen new species. We note among them a new species of *Septoria* on *Solanum nigrum*, namely, *S. solani-nigri* Scalia. To species of *Solanum* heretofore have been referred the following *Septorias*: *S. dulcamaræ* Desm.; *S. lycopersici* Speg.; *S. pseudo-quiniae* Pat.; *S. solanicola* E. & E.; and *S. solanina* Speg.

A SUMPTUOUS VOLUME AND VERY IMPORTANT PUBLICATION ON ALASKAN CRYPTOGRAMIC BOTANY, being the 5th of the Harriman Alaska Expedition with coöperation of Washington Academy of Sciences, has just been issued by Doubleday, Page & Company, New York, 1904. It covers 424 pages, contains 44 plates both lithographic and heliotypic, and is devoted to the Fungi (Saccardo, Peck, and Trelease; pp. 11-62); Lichens (Clara E. Cummings; pp. 65-152); Algae (De Alton Saunders; pp. 163-250); Mosses (Cardot and Thériot; pp. 251-328); Sphagnum (Trelease; pp. 329-338); Hepaticae (Evans; pp. 339-372); Pteridophytes (Trelease; pp. 373-398). The introduction occupies pages 1-10, and the Index 399-424. The volume was prepared under the general direction of Professor Trelease. For review of parts pertaining to the Fungi, and the Lichens, see other paragraphs.

C. G. LLOYD'S MYCOLOGICAL NOTES No. 16, issued March 1904, contains an interesting account of his year's travel and study in Europe, with notes relative to several eminent mycologists, as Persoon, Romell, Elias Fries, Patouillard, Hariot, and Boudier. Five pages are devoted to a discussion, langue française, of the genus *Lycoperdon* in Europe; still another emphatic word on Nomenclature is added, and Notes on specimens in Fries' Herbarium.

BIRDS AND NATURE, AN ILLUSTRATED MONTHLY MAGAZINE, has published very good plates in color photography of some of the common Mushrooms. In Vol. 14, 1903, we note *Amanita* the Fly Mushroom, the *Chantarelle*, Glistening *Coprinus*, The Mushroom, the Green *Russula*, the Masked *Tricholoma*.

A BEAUTIFUL GOLDEN YELLOW HYDNUM has been described as *Hydnum carleanum* by D. R. Sumstine in the April No. of *Torrey* (1904). It is a resupinate form, spines 3-6 mm. long, golden yellow, on the under side of a decorticated log (*Ostrya virginiana*?), in Armstrong County, Pa.

ANNALES MYCOLOGICI, VOL. II, März 1904, contains the following articles: Milesi e Traverso, Saggio di una monografia del genere *Triphragmium*; Trautschel, Ueber auf Grund von irrthümlicher Bestimmung der Nährpflanzen aufgestellte Puccinien-Arten; Sydow, Novae fungorum Species; Rehm, Ascomycetes Americae borealis, I; Diedicke, Fungi imperfecti aus Thüringen; Guilliermond, Sur le noyau de la levure; Sydow, Mycotheca germanica Fasc. III, IV; Saccardo, De diagnostica et nomenclatura mycologia, Admonite quaedam.

NEW SPECIES OF FUNGI, 16 species, are described in the Bulletin of the Torrey Botanical Club, April 1904, by Charles H. Peck. They are included in the genera *Lepiota*, *Tricholoma*, *Collybia*, *Russula*, *Clitopilus*, *Plammula*, *Agaricus*, *Marasmius*, *Clavaria* and *Helvella*. The type localities include the States of

Missouri, Illinois, California, District of Columbia, Colorado and Michigan. No less than four of these interesting species belong to the genus *Agaricus*.

CAROLYN W. HARRIS OUTLINES AND ILLUSTRATES THE LICHENS *Collema* AND *Leptogium* in the May No. of the *Bryologist*, 1904. The two genera are described; and four species of the first and six of the last are enumerated. They are found in the same localities and common—readily separated by the amateur since the under surface of *Collema* is devoid of rhizoids but in *Leptogium* they are always present in some form.

P. MAGNUS IS THE AUTHOR OF AN INTERESTING PAPER, *Ein Weiterer Beitrag zur Kenntnis der Gattung Uredinopsis*, *Hedwigia*, 43:110-125, Pl. I-II, 24 Mar. 1904. The literary history of the several species is noted, and attention is called to the fact that *Uredinopsis americana* Syd. n. sp. *Ann. Mycolog.* 1:325, 1903, auf *Onoclea sensibilis* is the same thing as listed in Farlow's Host Index as follows:

SEPTORIA MIRABILIS Peck.

UREDIO MACROSPERMA Cooke.

GLOEOSPORIUM PHEGOPTERIDIS Pass.

MELAMPESORA SCOLOPENDRII (Fckl.) Farl.

and should be designated as *UREDINOPSIS MIRABILIS* (Peck) P. Mag. (*U. americana* Syd.). A new species on *Aspidium thelypteris*, collected by Geo. F. Atkinson, at Ithaca, N. Y., is named *UREDINOPSIS ATKINSONII* P. Magnus, and still another from same locality and collector on *Osmunda cinnamomea* is given as *UREDINOPSIS OSMUNDÆ* P. Magnus. Two lithographic plates illustrate the three species.

THE MYCOLOGICAL ARTICLES IN *HEDWIGIA*, BAND XLIII, HEFT 2, to be mentioned are: P. Hennings, *Zweiter Beitrag zur Pilzflora des Gouvernements Moskau*, *Fungi laminenses* a cl. E. Ule collecti, and *Einige Pilze aus Japan* (Anfang) [three new genera described in these papers]; P. Magnus, *Ein Weiterer Beitrag zur Kenntnis der Gattung Uredinopsis*; Max Britzelmayr, *Cladonia furcata* Huds. und *squamosa* L. etc.

IN THE *VERHANDLUNGEN DES BOTANISCHEN VEREINS DER PROVINZ BRANDENBURG*, 45 Jahrgang, 1903 (issued 1904), we find the following Mycological articles: Staritz, *Beiträge zur Pilzkunde des Herzogtums Anhalt*; Sandstedt, *Rügen's Flechtentflora*; Lindau, *Beiträge zur Pilzflora des Harzes* [with description of *Holcomyces* Lindau n. g. and *Pycnostysanus* Lindau n. g. and several new species]; Jahn, *Vorläufige Uebersicht über die bisher in der Mark beobachteten Myxomyceten*; Jaap, *Verzeichnis der bei Triglitz in der Prignitz beobachteten Hymenomyceten*; Hennings, *Beitrag zur Pilzflora von Rheinsberg*.

BULLETTINO DEL LABORATORIO ED ORTO BOTANICO della Università di Siena, Anno VI. Fasc. I-VI., includes: Origine e sviluppo delle Leptostromaceæ e loro rapporti con le famiglie affini, i consei trav. gr. (Fl. Tassi); Nuovi Micromiceti (Fl. Tassi); Micologia della Provincia senese 12a pubblicazione (Fl. Tassi); La Ruggine dei Crisantemi 'Puccinia chrysanthemi Roze' (Fl. Tassi); Indice generale dei Volumi I-VI.

FL. TASSI GIVES AN EXHAUSTIVE ACCOUNT OF THE LEPTOSTROMACEÆ, origin and development, in the Bull. del Lab. ed Orto Botan. della Università di Siena, 6:3-124, Pl. I-VI, 1904, the full title of the paper, which is printed in Italian, being Origine e Sviluppo delle Leptostromaceæ e loro rapporti con le famiglie affini. Notes are given of the various genera and species, also listed the material examined, a half dozen new forms or new names proposed, one new genus (*Giulia*), synoptical key to 26 genera, and table of the species with demonstrated or supposed connection with the *Ascomycetes*. The American species in the latter list, are *Crandallia juncicola* Ell. & Sacc. (to *Duplicaria acuminata* E. & E.), *Melasmium quercuum* Atks. (to *Rhytisma tostium* B. & C. (?), *Leptothyrella langloisii* (E. & E.) Sacc. (to *Asterina* sp.).

THE COSMOPOLITAN CHARACTER OF MOST SPECIES OF THE GASTEROMYCETES, many forms of which group have been so long known to botanists, suggests special attention to a list of eight species that were published as new by L. Hollos, in Vol. XIX. of *Mathematische und Naturwissenschaftliche Berichte aus Ungarn*. Mr. Lloyd has already noted his own opinion as to the *Geaster pseudostriatus* Hollos n. sp.—regarding it as *G. asper* Mich.; and *Geaster usudolimbatus* Hollos n. sp. he identifies as *G. limbatum* Fr. Hollos' entire list is as follows: (1) *Geaster pseudostriatus*, (2) *G. hungaricus*, (3) *G. pseudolimbatus*, (4) *Calvatia tatrensis*, (5) *C. hungarica*, (6) *Lycoperdon hungaricum*, (7) *L. pseudocephæforme*, (8) *Bovista hungarica*.

THE NUOVI MICROMICETI BY FL. TASSI in the *Bullettino del Laboratorio ed Orto Botanica della R. Università di Siena*, 6:125-7, 1904, contains descriptions of eleven species. Of these one is American, namely, *Sphæropsis hamamelidih* Fl. Tassi, n. sp., *hab.* in cortice *Hamamelidis virginicæ*, Virginia, Amer. bor. 1903.

FREDERICK D. CHESTER TREATS EXHAUSTIVELY THE SUBJECT OF THE BACTERIOLOGICAL ANALYSIS OF SOILS in *Bulletin* 65, Delaware College Agricultural Experiment Station, March 1, 1904. We cite as an example of the species obtained from a sample of soil drawn May 11, 1903, from a grape vineyard, (this being a sandy loam and under good state of cultivation), the following: *B. ellenbachiensis* Caron, *B. tumescens* Zopf., *B. sp. indet.*, *B. alcalescens* Ford. An earlier analysis from experiment

station soil gave *Streptothrix soli* Chester, *B. tumescens* Zopf., *B. alcaligena* var. *pulvinatus* Chester, *B. ellenbachiensis* Caron, *B. mycoides* Flügge, a brown *Streptothrix* sp. "The kinds of Bacteria in the soil seem to be an extremely fortuitous matter Numbers can be increased by the introduction of sufficient humus into the soil to form food for the bacteria, and by stimulating their growth by active tillage.

NEW GENERA OF FUNGI PUBLISHED SINCE THE YEAR 1900, WITH CITATION AND ORIGINAL DESCRIPTIONS.

COMPILED BY W. A. KELLERMAN AND P. L. RICKER.

(Continued from page 155.)

[Phycomycetæ]

PARASITELLA Bainier n. g. Mucoraceæ. Bulletin de la Société de France, 19:153. 30 April 1903.

"*Parasitella simplex* nov. gen et sp. nov.

"J'ai exposé deux photographies de cette plante à l'Exposition universelle de 1889 sous le nom de *Mucor parasiticus*. Les sporanges du *Parasitella* sont rares et solitaires. Leur petitesse les fait échapper à la vision directe. Il faut les chercher au milieu des filaments du mycélium aérien qui est très développé. Leur forme est ovale, mais leur grand diamètre est perpendiculaire au support. Ils sont aplatis de haut en bas. La membrane qui les entoure est finement grenue et renferme un très grand nombre de petites spores ovales. La columelle est sensiblement ovale. Chaque sporange est porté par un support relativement court qui diminue insensiblement de diamètre à partir de la base. Ce support se sépare d'un filament de mycélium aérien en formant le plus souvent un angle très aigu. On est prévenu de la présence de cette plante par l'apparition de petites masses blanches adhérents aux supports des autres mucors et analogues aux nodosités que forment les *Chaetocladium*.

"La formation de ces tubérosités est fort curieuse. Lorsqu'un filament de *Parasitella* vient au contact d'un filament de *Rhizopus* ou d'un support sporangifère de *Mucor Mucedo* par exemple, il se produit un renflement sur chaque filament en regard l'un de l'autre. Ces deux renflements sont d'abord ovales ou fusiformes et deviennent globuleux. Puis le renflement de la plante qui va être attaquée par le parasite donne naissance à des prolongements allongés, digitiformes, souvent divisés au sommet, qui emprisonnent comme dans une griffe le renflement du *Parasitella*. Ces prolongements augmentent en nombre et en volume en même temps que le renflement du *Parasitella* devient une sphère de plus en plus volumineuse. Celle-ci donne nais-

sance à de nombreux filaments dont quelques-uns portent des sporanges. Quelquefois même le support d'un sporage prend directement naissance sur ce renflement."

[Phycomycetæ]

PRACHTFLORELLA Matruchot n. g. Mucoraceæ. Annales Mycologici, 1:56. Jan. 1903.

"Si au contraire on veut, dans les formes à mycélium continu, différencier deux genres, comme dans les formes à mycélium cloisonné on différencie les deux genres *Oedocephalum* et *Gonatobotrys*, il y aura nécessité de créer un nom générique nouveau pour *G. microspora*. Je propose dans ce cas le nome de genre *Prachtflorella*, pour rappeler le nom du remarquable ouvrage (*Prachtflora*) où Corda a décrit et figuré le *Gonatobotrys simplex* type du genre. *Prachtflorella microspora* (Riv.) Matr. sera dès lors le dénomination à appliquer à l'espèce de Rivolta. rangée logiquement, et jusqu'à preuve du contraire, dans la famille des Mucorinées."

[Phycomycetæ]

PROABSIDI Vuillemin n. g. [Type. *Mucor saccardoï* Oudemans.] Compte Rendus des Séances de l'Académie des Sciences, 136:515. 23 Feb. 1903.

"En dépit de ces altérations du mode de ramification des cystophores qui caractérise le genre *Absidia*, toutes ces espèces de *Tieghemella* concordent avec les *Absidia* par leur apophyse en entonnoir dans laquelle la columelle s'effaïsse après la déhiscence et par la structure des spores. Le sporocyste garde les mêmes caractères chez le *Mucor Saccardoï* Oudemans, dont l'affinité avec les *Absidia* est attestée en outre par les zygosporos entourées de fulcres, bien que les pédicelles soient simples et qu'il n'y ait ni stolons ni rhizoïdes. Nous avons récemment créé pour le *Mucor Saccardoï* le nouveau genre *Proabsidie*."

[Phycomycetæ]

PROTASCUS Dangeard n. g. Saprolegniaceæ. Comptes Rendus des Séances de l'Académie des Sciences. 137:627. 9 Mar. 1903.

"Le thalle adulte a la forme d'une bouteille placée dans l'axe de l'hôte; le col très allongé se recourbe pour venir perforer la paroi de l'Anguillule; assez rarement, le thalle est composé de plusieurs articles semblables.

"Au début de sa croissance, le parasite est constitué par un cordon de protoplasme ne renfermant qu'un seul noyau; le nombre des éléments nucléaires augmente rapidement par téléomitose et le sporange contient finalement 8, souvent 16, parfois 32 noyaux Le sporange, au lieu de donner naissance à des zoospores, comme on serait en droit de s'y attendre, fournit, en même nombre que les noyaux, de très longues spores immobiles; elles ont la forme de petites massues et leur orientation dans

le sporange est constante; l'extrémité renflée est toujours placée du côté du col.

"La sortie de ces pores a lieu par projection brusque: elles . . . arrivées au contact d'autres Anguillules se fixent à la paroi par leur extrémité amincie; une vacuole se montre à l'autre extrémité renflée; . . . elle y forme ce cordon uninucléé qui est le début du thalle ainsi que nous l'avons vu."

"Uar sa forme et sa structure, ce champignon est voisin des *Lagenidium* et des *Myzocythium*."

[Phycomycetæ]

PSEUDO-ABSIDIA Bainier n. g. Mucoraceæ. Bulletin de la Société Mycologique de France, 19:155. 30 April 1903.

"Pseudo-Absidia vulgaris nov. gen., sp. nov.

"*Absidia* dubia (Thèse sur les Mucorinées).

"Le *Pseudo-Absidia* se trouve en été sur le crottin de cheval presque sec. C'est sur la racine de réglisse qu'on le cultive le plus aisément. Le sporange a la forme d'une sphère coupée un peu au-dessous de son centre et est revêtue d'une membrane lisse ou très finement grenue non déliquescente. La columelle, largement assise sur l'extrémité dilatée du support, a la forme hémisphérique ou bien encore d'un ovale coupé un peu au-dessous de la partie médiane; enfin, elle est sensiblement conique dans les petits sporanges.

"Suivant les variétés, les spores sont rondes ou ovales. Le support du sporange, largement dilaté en tronc de cône renversé, présente une coloration bleuâtre-violacé, d'abord faible, puis très nette à l'endroit où commence la dilation pour remonter jusqu'au sponge; cette coloration se manifeste également sur la columelle, mais avec moins d'intensité. Ce support est droit ou recourbé suivant les variétés, mais ne présente jamais de cloisons. Les ramifications se composent quelques fois tout simplement de branches secondaires isolées nées de distance en faisant un peu moins qu'un angle droit et terminées assez brusquement par un sporange. Mais, le plus souvent, au lieu d'une seule branche, du même point au-dessous du sporange terminal, naissent de trois à cinq branches secondaires terminées chacune par un sporange et formant un verticille. Ces branches peuvent, à leur tour, former autant de verticilles secondaires.

"La plante est stolonifère, mais les stolons s'obtiennent difficilement. On ne les rencontre que dans les cultures sur crottin de cheval presque sec. Ils se forment sur les bords de la soucoupe en terre poreuse qui contient le substratum. Un long filament donne des crampons radiciformes à son extrémité et se fixe sur les parois du vase; bientôt les filaments fructifères isolés ou réunis par deux ou trois se dressent comme chez l'*Absidia coerulea* sur le sommet de la courbure en un point très voisin des crampons. Mais chaque support porte toujours un verticille de sporanges.

"Les zygospores se rencontrent parfois dans les cultures sur crottin de cheval, dans la partie inférieure du substratum. Ce sont des sphères jaunes, convertes d'une membrane ayant tendance à s'écailler par plaques enformant des lignes irrégulières. Cette zygospore, portée par deux longs suspenseurs lisses, incolores et dépourvus d'appendices, présente souvent un caractère particulier. La membrane des cellules conjugué qui enveloppe le zygospore continue à s'accroître au point de soudure et fait saillie extérieurement pour former une sorte de méridien."

[Phycomycetæ]

PSEUDOPERONOSPORA Rostowzew n. g. Peronosporaceæ. Flora oder Allgemeine Botanische Zeitung, 92:422,424. 6 Oct. 1903.

"Der falsche Mehлтаupilz, der auf der Gurke (Melone, Kürbis, Wassermelone u. a. Cucurbitaceæ) parasitiert, stellt eine besondere Gattung *Pseudoperonospora*, dar, die die mittlere Stellung im System zwischen den Gattungen *Peronospora* und *Plasmopara* findet. Die Konidienträger sind bei ihr ebenso gebildet wie die der *Peronospora*, aber die Konidien sind nach dem Typus der *Plasmoparakonidien* geformt."

[Phycomycetæ]

PYRRHOSORUS Juel n. g. Chytridiaceæ. Bihang til Kongliga Svenska Vetenskaps-Akademiens Handlingar. Afd. III. No. 14, Band 26:14. 1901.

"Im vegetativen Zustand zuerst ein Plasmodium, das später in freie, elliptische oder spindelförmige, nackte, einkernige Zellen zerfällt. Sori aus grösseren, gerundeten Sporenmutterzellen mit eingemischten sterilen, spindelförmigen Zellen. Sporenmutterzellen nackt, von orangefarbenen Körperchen gesprenkelt, durch drei successive Zellteilungen in nackte Haufen von acht gerundeten Zellen geteilt, welche zu Zoosporen werden. Zoosporen birnförmig, einen orangefarbenen Pigment fleck enthaltend und mit zwei lateral befestigten, nach vorn und hinten gerichteten Cilien."

[Phycomycetæ.]

RESTICULARIA Dangeard, emend. Fritsch. Ancylistaceæ. Annals of Botany, 17:661. Sept. 1903.

"Mycelium in part endophytic, in part ectophytic. Endophytic mycelium moniliform, with or without transverse septa, occasionally forming chlamydospores; ectophytic mycelium with or without septae, generally strongly branched and forming thin- or thick-walled spores. Other portions of the ectophytic mycelium act as infecting-hyphae. Sporangia formed in the endophytic mycelium, the contents of which are protruded to the outside through the wall of the host and there split up into a small number of zoospores, the latter rather large and uniciliate."

[Phycomycetæ.]

RHABDIUM Dangeard n. g. Chytridiaceæ. *Annales Mycologiques*, 1:61, 30 Jan. 1903, also in *Comptes Rendus de Séances de l'Académie des Sciences*, 136:473. 16 Feb. 1903.

"Le thalle consiste en un filament qui est fixé sur la paroi de l'algue par sa base; celle-ci perfore la membrane et se met en contact avec le protoplasma par une sorte de disque. . . . Le thalle tout entier se transforme en un sporange, le nombre des zoospores est en général de seize La zoospore en liberté réniforme, elle possède un flagellum qui est traîné à l'arrière pendant le mouvement La zoospore se fixe sur la paroi de l'algue et presque aussitôt un prolongement perfore la membrane; la partie restée à l'extérieur s'allonge en un tube qui deviendra le sporange."

[Phycomycetæ]

RHIZOCLOSMATUM Peterson n. g. Chytridineæ. *Journal de Botanique*, 17:216. June→July. 1903.

"*Rhizoclosmatium globosum* n. gen. et nov. sp.; fig. 1, 2. "Les sporanges adultes ont une grandeur très variable, en moyenne environ 17-20 μ en diam. (souvent ils ont un diamètre 3-4 fois plus grand), sphériques; ils sont pourvus d'une membrane médiocrement épaisse, hyaline, lisse. Le mycélium est uni avec le sporange par une partie subsporangiale (un élargissement de la base du mycélium d'une forme variable. Le mycélium se compose de filaments très minces, fort ramifiés et longs, dont il est difficile d'observer les dernières ramifications; souvent ils périssent de bonne heure. Parfois le mycélium n'est si développé que le nom de *Rhizoclosmatium* l'indique. Les filaments et la partie subsporangiale ont un contenu réfringent et des parois très minces. Les zoospores ont 2-3 μ en diam.; elles sont ovoïdes ou sphériques et sortent une à une par une ouverture circulaire du sporange. Elles ont un flagellum très long traîné à l'arrière et un noyau avec un nucléole très distinct. Elles naissent vite pendant quelques minutes, puis elles deviennent immobiles et germent immédiatement en émettant la partie subsporangiale et le mycélium, tandis que la zoospore elle-même devient le sporange.

"Dans les sporanges jeunes, on voit des gouttes réfringentes, des vacuoles, et souvent des granules d'une couleur rubigineuse. Dans les sporanges adultes, les nucléoles seuls sont colorés. Des spores immobiles (fig. 2), provenant de sporanges transformés, se rencontrent rarement. Elles sont sphériques comme les sporanges et ont une membrane brunâtre très épaisse. Elles contiennent en petit nombre de gros granules réfringents."

[Phycomycetæ]

SIPHONARIA Petersen n. g. Chytridineæ. *Journal de Botanique*, 17:220. June-July 1903.

"*Siphonaria variabilis* n. gen. et n. sp.; fig. 11-17. Le thalle de cette espèce se compose de deux parties: le sporange et les

rhizoïdes; il n'y a aucun élargissement du mycélium à la base du sporange. Les sporanges adultes ont une forme très variable. Tantôt ils sont à peu près sphériques (fig. 11) avec une papille du côté de la base du mycélium, tantôt piriformes (fig. 13, 14.) quand cette papille devient grande, tantôt hémisphériques (fig. 12) ou réniformes avec une petite papille plus ou moins distincte, ou sans papille, près de la base du mycélium. Les sporanges ont par ex.: $17 \times 16 \mu$; $24 \times 21 \mu$; $20 \times 16 \mu$; $12 \times 11 \mu$ en diam. Ils ont des membranes minces, hyalines, lisses. Les parois des rhizoïdes sont relativement épaisses, en particulier à la base, d'où le mycélium prend un aspect très gros; et comme leur protoplasma est mince, elles ont l'air de tubes vides, d'où le nom de *Siphonaria*. Le mycélium est ramifié, mais beaucoup moins que dans les espèces précédents. Les zoospores sont nombreuses, $1-3 \mu$ en diam., uniciliées (?). Leur sortie du sporange se fait comme chez l'*Asterophlyctis*; quand le sporange demeure fermé, elles se comportent comme chez ce dernier. Elles sortent par la papille, latéralement, ou au bout, ou au côté de celle-ci. La zoospore émet en germant les rhizoïdes et devient elle-même le sporange. Les nucléoles des zoospores ont souvent la même couleur rubiginieuse que les zoospores du *Rhizoclostridium*; dans les sporanges jeunes on trouve ici comme là le pigment dans le nombreux petits granules. Les spores immobiles sont presque sphériques (de la grandeur des sporanges), moins souvent, chez les individus, piriformes, de la forme du sporange; elles sont des sporanges transformés. Leurs parois sont épaisses, lisses, brunâtres. Leur contenu est granuleux, incolore. Elles paraissent toujours réunies avec des rhizoïdes. A la phase d'enkystement on trouve ordinairement deux ou trois individus se fusionnant par leurs rhizoïdes (v. fig. 16, 17). Un ou deux de ces individus ont leurs sporanges peu développés et vides; leur contenu est passé dans les spores immobiles. Probablement nous avons affaire ici à un processus sexuel. Pour résoudre cette question, il faut encore des recherches ultérieures."

IV. ASCOMYCETAE.

[Ascomycetæ]

ACKERMANNIA Patouillard n. g. Gymnoascaceae. Bulletin de la Société Mycologique de France, 18:180. 15 Mai 1902.

"Strome superficiel, en forme de croûte ou de coussinet, peu dense, laineux, de couleur claire, composé de filaments larges, rameux et distants.

"Périthèces complètement entourés par la trame stromatique, astomes, les uns des autres, constitués par des hyphes simplement rapprochées, peu serrées, rameuses, entourant les askes.

"Thèques colorées, volumineuses, ovoïdes, stipitées, naissant sur les branches des hyphes centrales des périthèces, et se disposant en une seule zone radiale.

"Spores?"

"La présence d'un strome entourant les organes ascophores caractérise ce genre, qui se rattache aux Gymnoascés par ses périthèces filamenteux. Il est voisin d'*Onygena* et touche de très près à *Endogone* dont il représente peut-être l'état parfait."

[Ascomycetæ]

ALLESCHERINA Berlese n. g. Sphæriaceæ. *Malpighia*, 16:300. 1902.

"*Allescherina* Berlese, in litteris.

"Stroma plerumque tenue, cortici adnatum, crustaceum, peridermio tectum, rarius ligno serpens; perithecia sparsa, paulo prominentia, globosa, cortici vel ligno immersa, erecta, in collum incrassatum repente producta; ostiola tumescentia, rotundata, plerumque integra, tandem late pertusa. Asci clavati, longe stipitati, polyspori; sporidia allantoidea, pallide viridilutescentia.

"Ab affini genere *Cryptovalsa* Ces. et De Not. (em.) differt præcipue peritheciis sparsis vel subgregariis, sed nunquam in acervulos valsæformes bene definitos collectis."

[Ascomycetæ]

ARACHYNOMYCES Massee et Salmon n. g. Perisporiaceæ. *Annals of Botany*, 16:68. March 1902.

"Perithecia globosa simplicia astoma membranacea parenchymatica appendicibus fuscis eumorphis instructa, ascis minutis numerosis globosis, sporis primum conglobatis continuis fuscis.

"A *Pleuroasco*, Mass. et Salm., differt subiculi defectione et appendicibus fuscis, a *Magnusia*, Sacc., ascis globosis et sporis conglobatis."

[Ascomycetæ]

ARENAEA Penzig et Saccardo n. g. Pezizaceæ. *Malpighia*, 15:211. 1902.

"Ascomata minute stipitata, sursum in lobos varios (3-6) poculiformes divisa, ceraceo-membranacea, atra, setosa, contextu excipuli prosenchymatico. Asci elongati, paraphysati, octospori. Sporidia fusoidooblonga, continua, hyalina. Genus pulchellum, ascomate lobato-fisso, v. si mavis, pluri-cupulato insigne. Diceretur *Pirottaea* multiplex."

[Ascomycetæ]

ASCHERSONIOPSIS P. Hennings n. g. Hypocreaceæ. *Hedwigia*, 41:7. 5 Mar. 1902.

"Stromata cornea, dura, subglobosa, extus atra, intus pallida. perithecia prima subimmersa, globulosa dein erumpenti-superficialia, discoidea, pallida; hypha conidiophora hyalina, filiformes. Conidia subglobosa, hyalina.

"A. globosa P. Henn. n. sp. . . . Dieses Conidienstadium gehört höchst wahrscheinlich zu einer Hypocrella. Von Ascher-sonia ist dasselbe gänzlich verschieden."

[Ascomycetæ]

ASCOPOLYPORUS A. Möller n. g. Hypocreaceæ. Phycomyeten und Ascomyceten, 300. 1901.

"Stroma knollig oder hufförmig, fleischig oder gallartig, mit steriler Ober- und fertiler Unterseite. Fadensporige Schläuche. Conidien in Ketten oder verklebten Köpfchen?"

[Ascomycetæ]

BAUMIELLA P. Hennings n. g. Amphispinariaceæ. Baum's Kumen-Sambesi Expedition, 165. 1903.

"Perithecia cæspitosa erumpentia dein superficialia, membranacea, sublevia vel regulosa, minute ostiolata dein collabentia; asci clavati octospori; sporæ oblongæ, hyalinæ, subflavidulæ, dein 3-septatæ.

Von Trematostoma Sacc. durch die häutigen Peritheciën, ebenso von Winteria Rehm, sowie von Bertia durch das Vorkommen verschieden."

[Ascomycetæ]

BIATORELLINA P. Hennings n. g. Patellariaceæ. Beiblatt zur Hedwigia, 42:(307). Dec. 1903.

"Ascomata superficialia sessilia vel stipitata, obconicopatellata, submarginata, cornea, dura, atra, disco plano. Asci clavati, polyspori, paraphysati. Sporæ bacillariæ, hyalinæ, continuæ. . . . Biatorellæ et Comesiæ affin."

[Ascomycetæ]

BLASDALEA Sacc. et Syd. n. g. Microthyriaceæ. Sylloge Fungorum, 16:634. 1 Feb. 1902.

"Perithecia sessilia, mycelio hyalino insidentia, dimidiata, orbicularia, disciformia, atra, centro demum subpapillata et poro minuto pertusa, membranacea. Asci oblongo-clavati octospori, paraphysati. Sporidia globosa, continua, colorata. — A *Visella* differt peritheciis mycelio insidentibus sporidiisque globosis."

[Ascomycetæ]

BRESADOLELLA v. Höhnelt n. g. Nectriaceæ. Annales Mycologici, 1:522. 10 Dec. 1903.

"Peritheciis superficialibus, sessilibus, liberis, globosis, carnis, ex aureo olivascentibus, pilis rigidis ornatis, ostiolo minuto; paraphysibus parvis; ascis clavatis, octosporis; sporidiis hyalinis, e cellulis binis, oblongis, facile jamque ipso in asco se separatibus formatis.

"*Bresadolella aurea* n. sp. I. Fungus ascophorus. . . . II. Fungus conidiophorus (*Dendryphium Bresadoellæ* n. sp.)

"Die Gattung *Bresadolella* steht der Gattung *Neorehmia* äusserst nahe, und war ich ursprünglich geneigt, den Pilz zu letzterer Gattung zu stellen. Da aber *Neorehmia* in der Regel kein deutliches Ostiolum besitzt und daher als Perisporiaceæ zu betrachten ist, während *Bresadolella* stets eine Peritheciëöffnung zeigt, an der ich auch das Austreten der Sporenhälften beobach-

ten konnte, auch das Gehäuse des neuen Pilzes weich, Nectriaceen-artig ist, und sich die beiden Gattungen schon habituell durch die verschiedene Behaarung auffallend unterscheiden, schloss ich mich der Ansicht des Herrn Dr. Rehm an, dass die Aufstellung eines neuen Genus unbedingt gerechtfertigt ist.

Durch die schon im Schlauche in 2 Hälften zerfallenden Sporen erinnert *Bresadolella* an *Hypocrea*, die aber in ein Stroma eingeseukte Peritheccien besitzt. Unter den Nectriaceen scheint am nächsten *Lasionectria* (Subgenus von *Nectria*) verwandt, hier zerfallen aber die Sporen nicht in ihre Hälften und die Behaarung ist hellfarbig. Unter den Sphaeriaceen erscheint am nächsten verwandt die Gattung *Eriosphaeria*.

"Der als Conidienpilz beschriebene Hyphomycet gehört ohne Zweifel in den Entwicklungskreis der *Bresadolella*, die sich stets nur in den Rasen desselben vorfand, und daher auch mit der Lupe nicht zu sehen war. Derselbe ist kein typisches *Dendryphium* und könnte auch als *Helminthosporium* aufgefasst werden."

[Ascomycetæ]

BULGARIOPSIS P. Hennings n. g. Bulgariaceæ. Hedwigia, 41:21. 5 Mar. 1902.

"*Ascomata* gelatinosa, primo clausa clavata, stipitata vel sessilia, dein disciformia, intus glutinosa, subelastica. Asci clavati, paraphysati, 8-spori. Sporæ bacillares, continuæ hyalinæ. Genus inter Ombrophilam, Bulgariam Cordieritemque."

[Ascomycetæ]

CALOSTILBE Sacc. et Syd. n. g. Hypocreaceæ. Sylloge Fungorum, 16:591. 1 Feb. 1902.

"*A Sphaerostilbe* differt præcique sporidiis coloratis et status conidici arthrosporioidei characteribus."

[Ascomycetæ]

CAPNODIOPSIS P. Hennings n. g. Capnodiaceæ. Hedwigia, 41:298. 15 Dec. 1902.

"*Mycelium* fuscum, sparsum. Perithecia subcoriacea, varie globulosa, vertice elongato cornuta, atra, apice rotundato aperta. Asci ovoidei vel subglobosi, tunicati, 8-spori. Sporæ subglobosæ, continuæ, hyalinæ vel dilute fusciculæ."

[Ascomycetæ]

CERION Masee n. g. Stictæ. Royal Botanic Gardens, Kew, Bulletin of Miscellaneous Information. Nos. 175-177, p. 159. July-September, 1901.

"*Ascophora* erumpentia, cerata, marginata, sessilia, hymenio plano late colorato. Asci cylindrici, octospori. Sporæ filiformes, hyalinæ, multiseptatæ. Paraphyses filiformes.

"Allied to the genus *Schizoxylon*, distinguished by the prominent free entire margin and the brightly coloured disc. The spores break up into segments through the septa when mature. Entire substance of the fungus waxy."

[Ascomycetæ]

CHORIOACTIS Kupfer n. g. Pezizaceæ. Bulletin of the Torrey Botanical Club, 29:142. March 1902.

"Chorioactis Geaster. (*Urnula Geaster* Peck, Reg. Rep. 46:39. 1903.) Finally we come to the species which was called by Peck *Urnula Geaster*, and which, since it is not an *Urnula*, I propose to call *Chorioactis*. This is a very large leathery fungus from 4-7 cm. in diameter, narrowed to a stem about 3 cm. long and 1-1.5 thick. The apothecium splits into 4-6 rays, giving the plant an appearance very similar to a *Geaster*, so that Peck's specific name is an appropriate one. Both disc and stem are covered on the outside with a dense tomentum of soft brown hairs. The thickness of the apothecium is a striking characteristic; it sometimes reaches 2.5 m. The outer layer of the apothecium is dark brown, the hymenium and flesh yellowish white; the asci are very large, 670 μ long; the spores are 49-60 μ long by 12-16 μ wide. The *Geaster*-like appearance of this fungus, the tough, leathery texture, the thickness of the disc, and the velvety tomentum which clothes the whole surface make of it an exceptionally characteristic and easily distinguishable genus and species. That it is not an *Urnula* seems to me just as evident from its external appearance as from examination of its tissues. A comparison of internal characters shows, however, that there is no possible relation with *Urnula Craterium*. The tissue is made up wholly of large parenchymatous cells; those of the excipulum averaging 34 μ in diameter, those of the hypothecium 10-14 μ . The relative size of the cross sections of the various forms discussed can be seen from the fact that the sections of *Chorioactis Geaster* are magnified only thirty-five times, while all the others were magnified about two hundred times."

[Ascomycetæ.]

CILIELLA Sacc. et Syd. n. g. Pezizaceæ. Sylloge Fungorum, 16:748. 1 Feb. 1902.

"Ascomata sessilia, orbicularia, subgelatinosa, disco subplano, immarginato, excipulo parenchymatico. Asci ovati, octospori. Sporidia fusiformia, pluriseptata, hyalina, utroque apice l-ciliata. Paraphyses conglomeratae, epithecium formantes. Jodi ops nulla."

[Ascomycetæ.]

COUTINIA d'Almeida et de Souza da Camara n. g. Sphaeriaceæ. Revista Agronomica, 1:392. Dec. 1903.

"*Perithecia carbonacea, plerumque conglomerata, haud stromatica, oestiolis pertusis, subtectis; asci octospori, stipitati, paraphysati; sporidia continua, hyalina, plus minus elliptica, disticha.*"

"A familia *Dothideacearum* praecipue different stromate nullo."

[Ascomycetæ.]

CRIELLA Saccardo n. n. [ut subg. *Rhytisma*.] Sylloge Fungorum, 16:786. 1 Feb. 1902.

"Sporidia ovoidea, brunnea."

[Ascomycetæ.]

DAVINCELLA (as sub-genus), *see Davincia*.

[Ascomycetæ.]

DAVINCIA Penzig et Saccardo n. g. Pezizaceae. Malpighia, 15:215. 1902.

"Ascomata ceraceo-membranacea, stipitata, v. sessilia (*Davincia*), laeticoloria, margine eximie dentato-fimbriata. Asci paraphysati, octo-spori. Sporidia oblonga, 2-pluriseptata, hyalina. Contextus totius fungilli anguste prosenchymaticus, tenacellus. Est *Cyathicula* hyalophragnia, et inter Pezizaceas occupabit n. 189. Cfr. Sacc. Tabul. compr. pag. 31."

[Ascomycetæ.]

DELPONTIA Penzig et Saccardo n. g. Stictidaceae. Malpighia, 15:220. 1902.

"Ascomata jugiter immersa, immarginata, disciformia, ceracea laeticoloria (omino ut in *Stictide*). Asci elongati paraphysati octospori. Sporidia oblonga, 3-pluriseptato-muriformia, hyalina. — Nonnullis generibus affinis, differt tamen a *Melittosporio* ascomate stictioideo, nec hysterioideo, a *Pleiostrictide* et *Platystictia* ascomate discoideo, laeticolori, ascis octosporis, sporidiis minutis etc. Est genus *Stistidi* prorsus parallelum."

[Ascomycetæ.]

DIAGMASCELLA Maire et Saccardo n. g. Phacidiaceae. Bulletin Société botanique de France, 48:ccv. Sept. 1903.

"Apothecia follicola, diu epidermide tecta, excipulo omnino carentia, paraphysibus filiformibus; asci tetrasporis; ascosporis phaeodidymus, inequaliter septo divisus, muco obvolutis.—A *Didymasco* ascosporis phaeodidymis, nec non habitu apothecii paraphysiumque recedit, et certe ad Phacidiaceas accedit."

[Ascomycetæ.]

DIAGYRIUM Sacc. et Syd. n. sub-genus. *Agyrium*. Sylloge Fungorum, 16:769. 1 Feb. 1902.

"Sporidia 1-septata."

[Ascomycetæ.]

DIDYMASCELLA Maire et Saccardo n. g. Phacidiaceae. Bulletin Société botanique de France, 48:ccv. Sept. 1903.

"Apothecia follicola, diu epidermide tecta, excipulo omnino carentia, paraphysibus filiformibus; ascis tetrasporis; ascosporis phaeodidymus, inequaliter septo divisus, muco obvolutis.—A *Didymasco* ascosporis phaeodidymis, nec non habitu apothecii paraphysiumque recedit, et certe and Phacidiaceas accedit."

[Ascomycetæ.]

DIELSIELLA P. Hennings n. g. Hysteriaceae. Beiblatt zur Hedwigia, 42:(84). März. 1902.

"Perithecia erumpenti-superficialia carbonaceo-atra, convexo-pulvinata vel scutellata, medio depressa papillata, rima subcirculari dehiscencia. Asci ovoidei vel clavati, 4-8-spori, copiose para-

physati. Sporae ellipsoideae, 1-septatae, atro-fuscae. Tryblidio Lembosiae, Schizocycloni affin."

[Ascomycetæ.]

DISCOMYCOPESELLA P. Hennings n. g. Leptostromataceae. Hedwigia, 41:146. 5 Aug. 1902.

"Perithecia innato-erumpentia, carbonacea, atra vertice porosorimosa. Conidia conglobata subglobosa vel ovoidea, fusco-brunnea, granulato-verrucosa. Discomycopsi aff."

[Ascomycetæ.]

EIDAMELLA Matru. et Dassonv. n. g. Gymnoascaceae. Bulletin de la Société Mycologique de France, 17:129. 13 May 1901.

"Périthèces buissonneux; péricidium formé d'hyphes à paroi épaisse, cutinisée et noire, abandonnant ramifiés, portant de courtes branches latérales à pointe incolore sur laquelle s'insère, dans le jeune âge, un à cinq filaments spirales incolores. Asques nombreux, ovales, courtement pédicelles, renfermant huit ascospores fusiformes, incolores."

[Ascomycetæ.]

ENTONAEMA A. Möller n. g. Sphæriaceæ (Xylariaceæ). Phycomyceten und Ascomyceten, 306. 1901.

"Fruchkörper hohl, weichfleischig, innen gallertig, unregelmässig geformte, oft mehrere cm. grosse Knollen oder Blasen mit verhältnissmässig dünner Wandung darstellend. Perithecien auf der ganzen Oberfläche eingesenkt. Schlauchsporen einzellig, dunkel."

[Ascomycetæ.]

EOTERFEZIA Atks. n. g. Elaphomycetes. Botanical Gazette, 34:40. July 1902.

"Fruit bodies subglobose, minute, fleshy, with a distinct but very thin, undifferentiated wall, smooth or slightly hairy. Interior of fruit body with sterile avenues radiating from the base and branching until they unite with the wall. Fertile areas lying between containing the asci intermingled with the supporting hyphae. Spores smooth, hyaline, one-celled. Interior not disintegrating into a powdery mass at maturity. At present one species."

[Ascomycetæ.]

EOTERFEZIACEÆ Atks. n. fam. Elaphomycetes. Botanical Gazette, 34:40. July 1902.

"Fruit bodies with a thin but distinct wall of closely interlaced hyphae. Interior with sterile avenues connected with the wall and separating the fertile areas where the asci are irregularly arranged."

[Ascomycetæ.]

FLAMINIA Sacc. et Syd. n. g. Stictidaceae. Sylloge Fungorum 16:777. 1 Feb. 1902.

"Ascomata primitus innata, globosa, clausa, dein disco punctoideo-aperto, orbiculari, demum plano. Asci ovoidei, polyspori, parce paraphysati. Sporidia globosa, hyalina, levia. — *Lindauellae* affinis, sed plane differt ascis ovatis polysporis."

[Ascomycetæ.]

FLEISCHERIA Penzig et Saccardo n. g. Hypocreaceae. Malpighia, 15:230. 1902.

"Stroma tuberoso-sphæroideum, biogenum, majusculum, basi applanata sessile, mox sclerotiaceo-corneum, durum. Perithecia omnino immersa, globoso-piriformia, ostiolo papillato vix emergente. Asci tereti-elongati, aparaphysati. Sporidia polysticha, filiformia, hyalina, mox in articulos bacillares utrinque obtusos dilabentia. — Genus insigne, ab *Hypocrella*, *Moelleriella* et *Ascopolyporo* stromate mox indurato, sclerotiaceo-corneo distinguendum."

[Ascomycetæ.]

GLOEOCALYX Massee n. g. Bulgariæ. Royal Botanic Gardens, Kew, Bulletin of Miscellaneous Information, Nos. 175-177, p. 155. July-September, 1901.

"*Ascomata* subgelatinosa, sessilia, cupulata, extus reticulata, glaberrima. *Asci* cylindracei, apice truncati, octospori. *Sporae* 1-seriatæ, hyalinæ, ellipticæ, aseptatæ. *Paraphyses* filiformes.

"Allied to *Bulgariella*, Sacc., from which the present genus differs in having hyaline spores."

[Ascomycetæ.]

GLOMERELLA v. Schrenk & Spaulding n. n. (*Gnomonopsis* Stoneman.) [Type, *Septoria rufomaculans* (Berk.) 1854.] Science, N. S. 17:750-1. 8 May 1903.

[Ascomycetæ.]

GRAPHYLLIUM Clements n. g. Hypodermiaceae. Botanical Survey of Nebraska, 5:6. 30 March 1901.

"*Hysterothecium* innate, then erumpent, linear, simple, membranaceous-plectenchymatous, black; asci ovoid or cylindrical-clavate, 8-spored; spores brown, elliptical to oblong, with transverse and longitudinal septa, but not muriform; paraphyses simple or branched, septate, forming an epithecium."

[Ascomycetæ.]

GUIGNARDIELLA Sacc. et Syd. n. n. [*Vestergrenia* Rehm 1901, nec Sacc. et Syd. subg. 1899.] Sylloge Fungorum, 16:465. 1 Feb. 1902.

[Ascomycetæ.]

HASSEA Zahlbruckner n. g. Pyrenidiaceae (Lichenum). Beihefte zum Botanischen Centralblatt, 13:150. 1902.

"Thallus crustaceus, uniformis, hyphis medullaribus substrata affixus, rhizinis destitutus, homœomericus, ecorticatus, gonidiis nostocaceis, glomerulosis. Apothecia pyrenocarpica, simplicia, gonidiis hymenialibus nullis, perithecio recto, fulgineo. Paraphyses laxè ramoso-connexæ, parum conspicuæ. Asci 8 spori. Sporæ bacillares, simplices et hyalinæ. Pycnoconidia ignota."

[Ascomycetæ.]

HENNINGSINIA A. Möller n. g. Sphæriaceæ. Phycomyceten und Ascomyceten, 399. 1901.

"Stromata mit einer urnenartigen Vertiefung, in welcher die lang cylindrischen Perithechien dicht gedrängt stehen. Ueber ihnen liegt eine nicht durchbohrte feste Deckelscheibe, nach deren Verwitterung erst die Sporen frei werden können. Sporen einzellig, dunkel."

[Ascomycetæ.]

HETEROPHLEGMA Clements n. g. Pezizaceæ. Bulletin of the Torrey Botanical Club, 30:92. Feb. 1903.

"Apothecia superficialia, sessilia, carnosa, hemisphæri-copulata, fufuraceo-excipulata, magna; epithecium nullum; paraphyses præsentis; hypothecium percrassum, hyalinum, trilaminatum, lamina superiore et inferiore pseudoparenchymaticis, medullari hyphis parallelis intertextisque, tramitiforme; excipulum tenue, filis brevibus tomentosum. Asci octospori, cylindracei, iodo valde cærulescentes. Sporæ continuæ, hyalinæ, ellipticæ. Nomen propter hypothecium laminatum, herteos, dissimilis, plegma, vimineum.

"Est *Plicaria* hypothecio heteromorpha."

[Ascomycetæ.]

HYPODERMOPSIS Earle n. g. Hypodermataceæ. Bulletin of the New York Botanical Garden, 2:(345). 25 April 1902.

"Ascoma elongate, black, minute, confluent with the host tissues (as in *Hypoderma*); ascospores elliptic or spindle-shaped, brown, two or more septate.

"This is not to be confounded with *Rhytidhysterium*, although the spore characters are the same. In the latter genus the ascoma is fully erumpent with inrolled lips that expand to discoid when moistened. It should probably be placed in the Cenangiaceæ rather than in the Hypodermataceæ. This family when properly defined forms a natural group in which the elongated ascoma is buried, having its walls more or less completely blended with the host tissue. The structure is comparable to that of *Rhytisma* in the Phacidiaceæ or of *Phyllachora* in the Dothi-deales."

[Ascomycetæ.]

HYPOSCYPHA Bres. n. g. Helotiaceæ. Broteria, Revista de Sci. Nat. Collegio S. Fiel, 2:89. 1903.

"Ascomata ceraceo-carnosula, stipitata, ex urceolato scutellata, textura prosenchymatica, sc. e cellulis cylindraceis, elongatis, extus ex hyphis terminalibus, contextis, prolongato-disjunctis villosa, Asci tereti-fusoidei, 8-spori. Sporæ hyaline, oblongæ vel fusioideæ. Paraphyses filiformes, apice obtusæ plus minusve vel vix incrassatæ.

"A genere *Dasyscypha* differt deficientia pili genuini in ascomate."

[Ascomycetæ.]

LINHARTIA Sacc. et Syd. n. g. Pezizaceæ. Sylloge Fungorum, 16:744. 1 Feb. 1902.

"Ascomata in mycellio vel bysso tenui sessilia, primitus, globoso-clausa, dein patellaria, disco plano vel convexulo, glabra. Asci clavati, paraphysati, octospori. Sporidia hyalina, 1-septata, ovata.—Est quasi *Trichobelonium* hyalodidymum."

[Ascomycetæ.]

LIZONIELLA P. Henn. n. subg. Lizonia. Beiblatt zur Hedwigia, 40:(96). Juli, Aug. 1901 (15 Aug. 1901.)

"Die Sporen sind stets hyalin und dadurch besonders von den braunsporigen Arten der Gattung Lizonia Ces. et DeNot. verschieden."

[Ascomycetæ]

MESNIERA Sacc. et Syd. n. g. Sphæriaceæ. Sylloge Fungorum, 16:440. 1 Feb. 1902.

"Perithecia minuta, globosa, rufo-brunnea. Asci fasciculati, cylindracei, paraphysati, 12-16-spori. Sporidia continua, colorata, globosa vel ovato-globosa, verrucosa.—*Anthostomellae* affinis, differt ascis polysporis sporidiisque verrucosis."

[Ascomycetæ]

MIDOTIOPSIS P. Hennings n. g. Dermateaceæ. Hedwigia, 41:17. 5 Mar. 1902.

"Ascomata erumpenti-superficialia, coriacea plus minus stipitata, primo clausa dein subcupulata extus tomentosula. Asci cylindraceo-clavati, 8-spori, paraphysati. Sporæ globosæ, hyalinæ, continuæ."

[Ascomycetæ]

MOELLEROC LAVUS P. Hennings n. g. Xylariaceæ. Hedwigia, 41:15. 5 Mar. 1902.

"Stroma conidiophorum subcarnosum, elongato-fusiforme, lateraliter, ramosum, ramuli breves apice capitati, capitulum ex hyphis radiantibus fuscidulis compositum. Conidia acrogena ellipsoidea, fuliginea, continua. Stroma ascophorum subcarnosum, atro-corticatum, subclavatum. Perithecia immersa, subglobosa, immatura.

"M. Penicilliosis P. Henn. n. sp. A. Möll. Phyc. u. Ascom. p. 244. c. fig.

"Die Askenstromata sind von denen einer Xylaria aus der Sect. Xyloglossa kaum verschieden und dürfte die Gattung zweifellos mit Xylaria nahe verwandt, vielleicht die Art gar beschrieben worden sein, was aber vorläufig nicht feststellbar ist."

[Ascomycetæ]

MOELLERODISCUS P. Hennings n. g. Cudoniaceæ. Hedwigia, 41:33. 5 Mar. 1902.

"Ascomata membranaceo-carnosa, subgelatinosa, convexa, longe stipitata, disco levi, margine revoluto. Asci clavati 8-spori,

paraphysati. Sporæ subfusoideæ, hyalinæ, continuæ. *Cudonielliae affinis.*"

[Ascomycetæ]

MORENULA Sacc. et Syd. n. subg. Morenælla. Sylloge Fungorum, 16:655. 1 Feb. 1902.

"Perithecia molliuscula, subicula carentia paraphysibus instructa."

[Ascomycetæ]

MOUTONIELLA Penzig et Saccardo n. g. Phacidiaceæ. Malphigia, 15:221. 1902.

"Ascomata immersa, disciformia, subceracea, operculo epidermoideo nigricante, facile secedente tecta. Asci elongati, paraphysati (semper?), octospori. Sporidia filiformia, ascum subæquantia, hyalina. Est omnino *Stegia* scolecospora, n. 36 inter Phacidiaceas occupans. Cf. Sacc. *Tab. comp.* p. 33."

[Ascomycetæ]

MYCOCITRUS A. Möller n. g. Hypocreaceæ. Phycomyceten und Ascomyceten, 297. 1901.

"Fruchtkörper festfleischig knollig, ringsum mit halbeingesenkten bis ganz freien Peritheciën besetzt. Peritheciën bisweilen nach Ueberwachsen der älteren in mehrfacher Schicht übereinander. Sporen zweizellig."

[Ascomycetæ]

MYCOMALUS A. Möller n. g. Hypocreaceæ. Phycomyceten und Ascomyceten, 300. 1901.

"Stroma kuglig, knollig, fleischig, mit einer gürtelartig angeordneten scharf begrenzten fertilen Zone, und zwei sterilen Endflächen; die fadenförmigen Sporen zerfallen sehr früh in unzählbare Theilsporen."

[Ascomycetæ]

MYCOSPHAERIUM (Johan.) Clements n. n. (Mycosphærella Johan.) Bulletin of the Torrey Botanical Club, 30:84. Feb. 1903.

"Pro Mycosphærella Johan., nomine hybrido."

[Ascomycetæ]

MYRIANGIELLA Zimmermann n. g. Myriangieæ. Centralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten, Zweite Abteilung, 8:183. 10 Feb. 1902.

"Stroma sehr flach scheibenförmig, in dem ganzen centralen Teile in einer Schicht Asci bildend. Asci 8-sporig. Sporen länglich, nur quergeteilt, hyalin."

[Ascomycetæ]

OHLERIELLA Earle n. g. Amphispheeriaceæ. Bulletin of the New York Botanical Garden, 2:(349). 25 April 1902.

"Perithecia as in *Amphisphaeria*, asci large, at first 8-spored, the young spores hyaline and several-celled, at maturity brown

and separating within the ascus at all the septa, the ascus thus becoming many-spored and the spores unicellular.

"This is clearly related to *Ohleria* in which the 4-celled spore divides into two 2-celled parts at maturity, the ascus thus becoming 16-spored, or it may be compared to a *Trematosphaeria* in which the spores fall to pieces in the ascus before maturity."

[Ascomycetæ]

OPHIODICTYON Sacc. et Syd. n. g. Sphæriaceæ. Sylloge Fungorum, 16:555. 1 Feb. 1902.

"Perithecia superficialia, turbinata vel fere clavulato-cylindrica, centraliter papillulata, circa papillulam discum nudum præstantia, ad marginem pilis fasciculatis coronata, carneo-coriacea. Asci clavati, octospori, paraphysati. Sporidia anguste fusoides v. subfiliformia, transverse multiseptata, muriformia, hyalina. — *Actiniopsidi* Starb. inter hyalophragmias affine."

[Ascomycetæ.]

OPHIOGLOEA Clements n. g. Bulgaricæ. Bulletin of the Torrey Botanical Club, 30:86. Feb. 1903.

"Apothecia superficialia, sessilia, gelatinosa, olliformia, extus atro-excipulata, hymenio læticolore; epithecium nullum; hypothecium plectenchymaticum, crassum, hyalinum, iodo cærulescens; excipulum parenchymaticum ad basin præcipue crassum, atro-avellaneum. Asci octospori, lineares, perlongi. Paraphyses simplices, longe clavulatæ, fere hyaline. Sporæ filiformes, parallele congestæ, ætate septulatæ, hyalinæ. Nomen propter formam sporarum textumque apothecii, *ophis*, anguis, *gloia*, gluten.

"A *Holwaya* differt forma cupulæ excipuloque, ab *Agyriopsis* excipulo, a *Bactrospora*, *Lahmia* et *Mycobacidia* contextu epithecioque, a *Gorgoniceps* excipulo parenchymatico."

[Ascomycetæ.]

PARODINA Sacc. et Syd. [sub *Parodiella aceris* Rac. — "Ubi in hac specie et præcedente sporidia sint constanter hyalina, novum genus (*Parodina* Sacc. et Syd.) erit instituendum"]. Sylloge Fungorum, 16:412. 1 Feb. 1902.

[Ascomycetæ.]

PELODISCUS Clements n. g. Pezizaceæ. Botanical Survey of Nebraska, 5:7. 30 March 1901.

"Ascoma minute, superficial, sessile, carnose, cupulate, at length disciform or explanate, pilose without, but not ciliate at the margin; asci cylindrical, 4-8-spored, paraphysate; spores ellipsoid or oblong, hyaline.

"Pelodiscus agrees with *Humaria* and *Scutellinia* in having the ascoma superficial, while in *Sepultaria* and in *Sarcosphaera* it is at first hypogæous. It agrees with *Sepultaria* in being simply tomentose or lanose without, in which it differs from the smooth *Humaria* and the ciliate-tomentose *Scutellinia*."

[Ascomycetæ.]

PELORONECTRIA A. Möller n. g. Hypocreaceæ. Phycomyceten und Ascomyceten, 297. 1901.

"Parallelgattung zu Mycocitrus unter den phragmosporischen Hypocreaceen. Grosses knolliges Stroma, das ringsum mit Peritheciën besetzt ist."

[Ascomycetæ.]

PELTIGEROMYCES A. Möller n. g. Pezizaceæ. Phycomyceten und Ascomyceten, 310. 1901.

"Apothecien knorpelig, dünn, mit grosser mannigfaltig gelappter ausgebreiteter Scheibe. Sporen hyalin einzellig."

PERROTIA Boudier n. g. Discomycètes operculés. Bulletin de la Société Mycologique de France, 17:24. 20 Mar. 1901.

"Species minores, sessiles, pilosæ, primo clausæ, dien aut jove pluvio apertæ. Receptaculum sessile, carnosum, extus pilis septatis, coloratis, granulosis vestitum; hymenio thecis clavatis, octosporis, operculatis, ad apicem obtusis, ad basim attenuatis; paraphysibus filiformibus, septatis, intus parèe franulosis, ad apicem vix crassioribus, non acuminatis; sporis achrois, oblongis, hyalinis, rectis aut leniter curvulis, primo continuis, denique medio uni-septatis."

[Ascomycetæ.]

PHLEBOSCYPHUS Clements n. n. (pro Paxina). Bulletin of the Torrey Botanical Club, 30:93. Feb. 1903.

"*Acetabula* Fr. 1823, Fckl. 1869, propter *Acatabulum* L. 1735 concidit. *Phleboscyphus* (*phelps*, *phlebos*, vena, *skuphos*, calix, propter venas apothecii) pro *Paxina* O. K., nomine hybrido, præpositum est."

[Ascomycetæ.]

PHYCOASCUS A. Möller n. g. Pezizaceæ. Phycomyceten und Ascomyceten, 309. 1901.

"Hypothallus weit ausgebreitet, aus locker verflochtenen sehr dicken Fäden. Apothecien verstreut auf dem Hypothallus, der in das Hypothecium ohne Grenze übergeht, umberandet, weich. Sporen hyalin einzellig. *Pyronema* verwandt?"

[Ascomycetæ.]

PLEURASCUS Mass. et Salm. n. g. Perisporiaceæ. Annals of Botany, 15:330. June 1901.

"Perithecia subiculo intertexto pannoso distincto vel confluyente insidentia, atra, astoma, membranaceo-carbonacea, fragilia, contextu parenchymatico, appendicibus pruribus hyalinis arcte spiraliter convolutis instructa; ascis globosis minutis numerosissimis mox diffluentibus in hyphis ramosis pleurogenis; sporis minutis fuliginis globosis.

"The present genus appears to be distinct among the Phæosporæ of the Perisporiaceæ in the dense pannose subiculum and the minute globose laterally-borne asci. The asci are pro-

duced in great numbers, and arise in a glomerulate manner on the delicate branched hyphae which fill the perithecium. This latter character suggests affinity with *Cephalotheca*."

[Ascomycetæ.]

POLYAGYRIUM Sacc. et Syd. n. sub-gen. Agyrium. Sylloge Fungorum, 16:769. 1 Feb. 1902.

"Sporidia 2-septata."

[Ascomycetæ.]

PSEUDOHEPPIA Zahlbruckner n. g. Ascolichenes. Annales Mycologici, 1:356. 10 Aug. 1903.

"Thallus squamosus, rhizinis destitutus, hyphis medullaribus substrato affluxus, homœomericus, non gelatinosus, nec corticatus, nec pseudo-parenchymaticus, hyphis thalli dense contextis, gonidiis scytonemeis, cellulis cœruleo-virescentibus, glomeruloso-concatenatis. Apothecia thallo innata, immersa permanentia, parithecio proprio indistincto, hypothallo pallido; sporæ 8-næ, simplices decoloresque. Pycnoconidia ignota.

"A genere *Heppia* differt thallo nullo loco pseudoparenchymatico."

[Ascomycetæ.]

PSILOTHECIUM Clements n. g. Patellariæ. Bulletin of the Torrey Botanical Club, 30:85. Feb. 1903.

"Apothecia superficialia, sessilia, ceraceo-coriacea, cupulato-hemisphaerica, nuda, nigra, minuta; epithecium nullum vel obsolescens, paraphyses lineares, simplices, hyalinæ; hymenium læticolorè; hypothecium plectenchymaticum, crassum, pallide fuscum; excipulum carbonaceum, crassum, glabrum vel tuberculatum, brunneo-nigrum, margine libero incurvo. Asci octospori, clavati, iodo non tincti. Sporæ continuæ, hyalinæ ellipticæ, leves. Nomen propter epithecium obsoletum, *psilos*, nudus, *thecheion*, hymenium. *Patinellæ* affinis, sed differt paraphysibus simplicibus, epithecio nullo hymenioque læticolorè."

[Ascomycetæ.]

PSOROTHECIELLA Sacc. et Syd. n. g. Pezizaceæ. Sylloge Fungorum, 16:746. 1 Feb. 1902.

"Ascomata patellaria, in mycelio tenuissimo hyalino-sessilia, excipulo subhyalino gonidiis destituto prædita, ceracea. Asci oblongi, 1-spori. Sporidia magna, 2-septata, hyalina. Paraphyses ramosæ. *Psorotheciopsidi* Rehm valde affinis, sed differt sporidiis 2-septatis."

[Ascomycetæ.]

PUTTEMANSIA P. Hennings n. g. Pezizaceæ. Hedwigia, 41:112. 23 June 1902.

"Ascomata caespitose erumpentia, carnosa, subglobosa dein cupulata colorata, villo omino vestita; asci clavati, paraphysati, 8-spori; sororæ fusoidæ, 3-septatæ, basi rostratæ, hyalinae subflavidulæ."

[Ascomycetæ.]

PYRENIDIACEAE Zahlbruckner n. fam. Lichenum. Beihefte zum Botanischen Centralblatt, 13:151. 1902.

"Ihrer systematischen Stellung nach gehört das neue Genus [Hassea] in jene Familie der Reihe der pyrenocarpen Lichenen, deren Gattungen durch die *Nostocaceen* oder *Ssytonema-Gonidien* ihres Lagers, ferner durch die einfachen und geraden Apothecien charakterisiert sind. Diese Familie umfasst ausser der Gattung *Hassea* noch die Genera *Eolichen* Zuk. *Placothelium* Müll. Arg. mit unberindeten, und *Coriscium* Wainio und *Pyrenidium* Nyl. mit berindetem Lager. Diese Familie, für welche ich den Namen *Pyrenidiaceae* in Vorschlag bringe, ist demnach weiter gefasst als Nylander's Tribus der *Pyrenidei*, welche nur auf die berindete Gattung *Pyrenidium* begründet ist. Eine Gruppierung der berindeten und unberindeten Gattungen zu je einer Familie halte ich nicht für nötig. Ein solcher Vorgang ist gewiss berechtigt bei einer Reihe thallodisch höher entwickelter Flechten, hier erscheint er mir nicht angemessen und zwar hauptsächlich in Anbetracht der thallodischen Verhältnisse der *Collema*ceen. Bei diesen, welche ebenfalls *Nostocaceen* als Algencomponenten besitzen, wechselt die Berindung des Lagers ungemein und es ist schwer, die Gattungen nach diesem Merkmale auseinander zu halten. Das Gesagte beweist die von Nylander creirte Gattung *Collemodium* und Wainio's Sektion *Collemodiopsis* der Gattung *Collema*, welche direkte Unbergänge von *Collema* zur Gattung *Leptogium* aufweisen. Das anatomische Merkmal der Berindung des Lagers, welches bei anderen Flechtengruppen sich nicht nur vorteilhaft zur Begrenzung der Gattungen, sondern auch zur Charakterisierung der Familien verwenden lässt und mit Recht dazu benutzt wird, versagt bei den *Collema*ceen. Aus diesem Grunde wollte ich auch die kleine, nur wenige Gattungen umschliessende Familie der *Pyrenidiaceen* nicht weiter zergliedern."

[Ascomycetæ.]

REHMIOMYCES Sacc. et Syd. n. subg. Bertia. Sylloge Fungorum, 16:489. 1 Feb. 1902.

"Rehmiomyces Sacc. et Syd. Perithecia mollia."

[Ascomycetæ.]

RINIA Penzig et Saccardo n. g. Sphaeriaceae. Malpighia, 15:224. 1902.

"Perithecia biophila, phyllogena, membranacea, nigricantia, fasciis mycelicis, innato-prominulis, repentibus, anastomatico-reticulatis semimmersa, globulosa, ostiolo albido, appdicibus verruciformibus, majusculis, nigris, carbonoreis stellatim cincto, Asci oblongo-fusoidei, paraphysati, octospori. Sporidia ellipsoidea, continua, hyalina. Genus ostiolo maximo stellato praedistinctum, qua nota faciem sumit *Delpinoellae*, etsi fabricâ omnino diversum et nulli nec affine nec parallelum."

[Ascomycetæ.]

RUHLANDIELLA P. Hennings n. g. Rhizinaceae. Beiblatt zur Hedwigia, 42:(24). Jan.-Feb. 1903.

"Ascomata superficialia, globosa, laevia, glabra, intus gelatinoso-carnosa, pseudoparenchymatica, hyalina, basi myceliofera. Asci cylindraceo-clavati, octospori, paraphyasti. Sporae globosae, brunneae, reticulato-verrucosae."

[Ascomycetæ.]

SACCHAROMYCOPSIS Schiønning n. g. Saccharomycetes. Comptes-Rendus des Travaux du Laboratoire de Carlsberg, 62: 124. 1903.

"Levures bourgeonnantes et donnant des endospores. La spore est munie de deux membranes et germe par bourgeonnement."

[Ascomycetæ.]

SCYTOPEZIS Clements n. g. Dermateae. Bulletin of the Torrey Botanical Club, 30:87. Feb. 1903.

"Apothecia superficialia, sessilia, ceraceo-coriacea, hemisphaerico-cupulata, atra, pilosa, margine stellatim fissis; ephithecium nullum; paraphyses praesentes; excipulum crassum, nigro-brunneum, pseudoparenchymaticum, pilis longis, atris dense obsitum; hypothecium crassum hyalinum, prosenchymaticum. Asci octospori, cylindracei, inoperculati, iodo tincti. Sporae continuae, hyalinae, ellipticae, leves. Nomen propter texturam apothecii, *skutos*, corium, *pezis*, fungus sessilis."

"Est Urnula estipitata, excipulo parenchymatico."

[Ascomycetæ.]

SOLENOPLEA Starback n. g. Xylariaceae. Bihang till Kongl. Handlingar, Stockholm, 27⁹:13. 1901.

"Stroma marginatum, fere totum, peritheciis cylindricis, altissimis plenum. Asci numerosissimi, e parietibus perithecii ubique oriundi. Sporidia continua fuliginea."

[Ascomycetæ.]

SPHAERODOTHIS Saac. et Syd. n. subg. Auerswaldia. Sylloge Fungorum, 16:625. 1 Feb. 1902.

"Sporidia globosa."

[Ascomycetæ.]

SPHAEROSTILBE Tulasne emend. A. Möller. Xylariaceae. Phycomyceten und Ascomyceten, 296. 1901.

"Die Gattungsdiagnose auf Seite 99-100 Band III der Carpologie ist dahin zu erweitern, dass die Perthecien, welche dort als 'nuda' bezeichnet sind, auch fein behaart, und die Ascen, welche 'quasi sessiles' genannt sind, auch lang gestielt sein können. Endlich müsste man zu dem Charakter 'sporae pallide' noch 'aut olivascentes' hinzusetzen."

[Ascomycetæ.]

SPHAEROSTILBELLA P. Hennings n. subg. Sphaerostilbe. Engler's Botanische Jahrbücher, 30:41. 12 Mar. 1901.

"Es wurden nur unseptierte Sporen beobachtet und gründet sich hierauf das Sub-genus *Spaerostilbella*."

[Ascomycetæ.]

SPIROGRAPHA Zahlbruckner n. g. Ascholichenes. Die Natürlichen Pflanzenfamilien, Lichenes (Flechten) I. Teil, 1. Abt. :96. 1903.

"Lager wie bei *Opegrapha*, Apothezien wie bei *Opegrapha* sect. *Euopegrapha*, die Schläuche jedoch vielsporig und die Sporen farblos, 2 zellig, nadelförmig, spiralig in einander gewunden."

[Ascomycetæ.]

SPOROCTOMORPHA Almeida et S. Cam. n. g. Sphaeriaceae. Revista Argonomica, 1:90. March 1903.

"Uerithecia sparsa, simplicia, subsuperficialia, glabra; contextu molliusculo hyalino; sporidia muco destituta, hyalina, tri-septata, ad septum medianum valde constricta, subfusioidea."

[Ascomycetæ.]

SPUMATORIA Mass. et Salm. n. g. Sphaeriaceae. Annals of Botany, 15:350. June 1901.

"Perithecia subglobosa, semi-immersa, demum superficialia, membranacea, in rostrum longum cylindraceum apice fimbriatum plus minus dilatatum attenuata, ascis tenuibus, evanescentibus, octosporis, sporis, didymis, hyalinis, demum in spuma mucilaginosa ex ore rostri ejectis; paraphysibus indistinctis."

[Ascomycetæ.]

SQUAMOTUBERA P. Hennings n. g. Xylariaceae. Beiblatt zur Hedwigia, 42:(308). Dec. 1903.

"Stromata subterranea?, tuberiformia, rotundata-depressa, intus subcarnosa pallida, extus membranas, subpapyraceas, squamosas vestita. Hyphæ fertiles, septatae, ramosae; conidia catenulata, subglobosa vel ovoidea, hyalina. Perithecia stromate atro ubique immersa, ostioli subhemisphaericis, punctiformibus, atris. Asci octospori, cylindracei. Sporae oblonge fusioideae, fuscæ. Penzigiae et Engleromycete affinis."

[Ascomycetæ.]

STARBÆCKIELLA Sacc. et Syd. n. subg. Clypeosporia. Sylloge Fungorum, 16:519. 1 Feb. 1902.

"Perithecia majuscula; sporidia muco tenui obvoluta."

[Ascomycetæ.]

STILBOHYPOXYLON P. Hennings n. g. Xylariaceae. Hedwigia, 41:16. 5 Mar. 1902.

"Stroma subcarbonaceum, atrum, hypoxylodeum, subglobosum. Perithecia pauca, immersa, membranacea, pallida. Asci cylindracei immaturi. Stroma conidioferum liberum vel stromate ascofero insertum, subulatum apice mucoso-capitatum. Conidia acrogena, subglobosa, fuscidula."

[Ascomycetæ.]

TAPHRIDIUM Lagerheim et Juel n. g. Protomycetaceæ. Bulletin de la Société Mycologique de France, 17:271. 15 Dec. 1901.

"*Taphridium* Lagerheim et Juel est un genre nouveau que nous créons en lui attribuant deux espèces: *Taphrina umbelliferarum* Lagerheim et *Taphridium algeriense* Juel. Elles n'appartiennent pas à la famille des Exoascacées, mais à celle des Protomycétacées; elles sont, en effet, très voisines des *Protomyces* dont elles se distinguent pourtant par leur port qui est celui d'un *Exoascus*. Nous comptons publier à bref délai nos recherches sur le développement et la structure de ces espèces."

"*Taphridium* Lagerh. & Juel n. gen.

"Hyphæ fertiles sub epidermide foliorum superiore repentes, stratum sporangiorum demum fere continuum, *Taphrina* instar, formantes. Sporangia globosa vel breviter ellipsoidea, membrana plus minusve incrassata, non tamen indurata instructa, non hibernanti, sporas numerisissimas ovoideas satim ejicientia." Bihang till kongl. Svenska Vetenskaps-akademiens Handlingar, 27:Pt. 3, No. 16. p. 7. 1902.

[Ascomycetæ.]

TICHOSPORIUM (Sacc.) Clements n. n. ["est *Teichosporella* Sacc., sectio *Teichosporæ* (Strickeriæ)."] *Teichosporella* verbum hydridum est, itaque ad *Tichosporium* corrigenda. Bulletin of the Torrey Botanical Club, 30:83. Feb. 1903.

"*Perithecia* sparsa vel gregaria, superficialia vel basi immersa, sphæroidea vel ovata, ostiolo papillari vel inconspicuo, coriacea vel carbonacea, atra, glabra. Asci cylindricei vel clavati, typice 8-spori. Sporidia elliptica vel oblongata, murali-divisa, hyalina. Paraphyses graciles aut parum notabiles."

[Ascomycetæ.]

TRACHYXYLARIA A. Möller n. g. Sphæriaceæ. Phycomyceten und Ascomyceten, 308. 1901.

"Wie *Xylaria* aber mit zweizelligen Sporen."

[Ascomycetæ.]

TRIDENS Masee n. g. Phacidiaceæ. Journal of the Linnean Society, 35:113. 15 July 1901.

"*Ascomata* immersa, disciformia, immarginata, excipula atro epidermidi concreto et cum illo in lacinia acutas e centro fissa. Asci clavati, octospori; sporæ hyalinæ, oblongæ, muriformes; paraphyses filiformes, clavulatæ.

"Est *Phacidium dictyosporum*."

[Ascomycetæ.]

VESTERGRENIA H. Rehm n. g. Sphæriaceæ. Hedwigia, 40:100. 20 April 1901.

"*Perithecia* sessilia, globosa, glabra, haud papillata, poro minutissimo pertusa, membranacea, atra, basi hyphis fuscis conjuncta. Asci ovaes, crasse tunicati, longe tenerime stipitati, 8-

spori. Sporidia elliptica, 1-cellularia, hyalina, 3-sticha. Paraphyses nullæ.

"(Von Coleroa durch 1 zellige Sporen und glattes Gehäuse, sowie durch ganz anders geformte Schläuche, von Trichosphæria durch häutige glatte Perithechien völlig verschieden. Wurde zu Ehren des trefflichen schwedischen Pilzforschers Vestergrén benannt. Scortechinia Sacc. ist nahe verwandt, besitzt aber ein 'subiculum ubique spinulis acute dentatis exasperatum.' Pilgeriella Hennings [Hedwegia XXXIX. p. 137] hat krustiges Mycel, perithecia papillato-ostiolata, asci clavati.)" [Sec. Sacc. et Syd. a synonym of Guignardiella q. v.]

[Ascomycetæ.]

XYLOCERAS Annie L. Smith n. g. Pyrenomycetes. Journal of the Linnean Society, London, 35:16. 1 April 1901.

"Stroma erectum, atrum, intus ex hyphis laxis compositum, cellulis corticis et peritheciis parvulus confertis; peritheciis ostiolatis, superficialibus, confertis; ascis 8-sporis, stipitatis; sporis irregulariter bi-seriatis, 1-septatis, brunneis."

[Ascomycetæ.]

XYLOCREA A. Möllig n. g. Sphæriceæ (Xylarieæ). Phycomyceten und Ascomyceten, 307. 1901.

"Fruchtkörper knollenförmig, fleischig, voll, mit einer auf die Unterseite beschränkten, deutlich begrenzten Perithechien tragenden Hymenialfläche. Sporen einzellig, dunkel."

ZIMMERMANNIELLA P. Hennings n. g. Dothidiaceæ. Hedwegia, 41:142. 23 June 1902.

"Stromata foliicola, innato-superficialia, subglobosa, subcornea, verrucoso-rugosa, atra. Perithecia immersa subglobosa vix ostiolata. Asci subfusioidei paraphysati, 3-spori. Sporæ monostichæ, oblongæ continuæ, hyalinæ. Kullhemiae Karst. aff."

V. LABOULBENIINEAE.

[Laboulbeniineæ]

ACALLOMYCES Thaxter n. g. Laboulbeniaceæ. Proceedings of the American Academy of Arts and Sciences, 38:23. June 1902.

"Receptacle consisting of two superposed cells, the lower sometimes apparently obliterated or indistinguishable from the foot, the upper bearing a single perithecium and an antheridial appendage. Appendage consisting of six superposed cells, the basal cell closely associated with the receptacle and the stalk-cell of the perithecium; the terminal-cell bearing a spine-like process and becoming converted into a simple antheridium, the subterminal-cell cutting off a cell laterally which becomes an antheridium, the remaining cells sterile. Perithecium stalked, normal in structure.

"A genus of very simple structure, closely allied to *Acompsomyces*, from which it differs chiefly from the character of its antheridial appendage."

[*Laboulbeniineæ*]

ACOMPSOMYCES Thaxter n. g. *Laboulbeniaceæ*. Proceedings of the American Academy of Arts and Sciences, 37:37. June 1901.

Receptacles two-celled, bearing an antheridial branch terminally and a single perithecium laterally. Antheridium consisting of several superposed cells from which single simple antheridia are borne directly. The perithecium borne on a stalk, the lumen of which becomes continuous with that of the ascigerous cavity."

[*Laboulbeniineæ*.]

CAINOMYCES, *See Kainomyces*.

[*Laboulbeniineæ*]

CERAIOMYCES Thaxter n. g. *Laboulbeniaceæ*. Proceedings of the American Academy of Arts and Sciences, 36:410. March 1901.

"Structure of the perithecium as in *Lauboulbenia*, its stalk-cell united to the free base of the free stalk-cell of the appendage, which bears a well differentiated basal cell terminally, from the end of which are borne antheridial branches, the successive cells of which produce terminally either successive secondary branchlets or antheridia or both, much as in *Laboulbenia*. Receptacle two-celled."

[*Laboulbeniineæ*]

COREOMYCES Thaxter n. g. *Laboulbeniaceæ*. Proceedings of the American Academy of Arts and Sciences, 38:56. June 1902.

"Mature individual consisting of a single series of superposed cells terminated by a single perithecium. Receptacle attached by a more or less rhizoid-like root and consisting of three superposed cells, the upper of which becomes divided distally by successive transverse septa; these divisions resulting in a series of superposed cells, from each of which arises, on one side, a single branched appendage; the members of the series thus resulting being superposed in a single vertical row. Perithecium consisting of an undifferentiated stalk-cell immediately above the appendiculate cells, which is followed directly by the ascigerous cavity, the septa which separate the basal and wall-cells being obliterated in mature individuals.

"The antheridia of this anomalous genus have not been definitely distinguished, but appear to be similar to those of *Ceratomyces*, to which it otherwise does not appear to be related. The development of the perithecium, in so far as it is shown by the material available, seems distinctly unlike that of any other genus."

(*To be Continued.*)

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NOTES.

Mycologists will, it is hoped, find the compilation of New Genera of Fungi very useful — even this first installment which represents the list for the period of three years since 1900. It is intended by the compilers to furnish Supplements from time to time; presently these exact reprints of the author's diagnoses will doubtless be found convenient for workers.

Attention may be called to the *Separate* or Reprint of the New Genera of Fungi, *printed on alternate pages*. The blank page can be used to insert notes, or for a time to receive other reprinted descriptions in their proper order. But the main *purpose* of this arrangement is to allow cutting up for pasting on library cards. The card system in general is indispensable on the part of the working mycologist. The expense of reprinting requires in this case that the price of the *Separate* be fixed at 75 cents.

The concluding portion of the first installment of New Genera will appear in the September *JOURNAL*.

Comments by mycologists are invited relative to the various points made by Saccardo in his timely and excellent *De Diagnostica et Nomenclatura Mycologica*, the translation of which was published in the last number of the *JOURNAL*. Here I will suggest the infeasibility — I may add the non-necessity — of using the character, “ \simeq ,” in giving dimensions in length and breadth of microscopic organs. In the first place, “spores $6 \times 5 \mu$ ” could scarcely be misinterpreted even by the beginner — and it is to be doubted whether the assertion is justified, namely, that this character between the two numbers is “made use of by mathematicians in another sense.” It certainly is as plain as its synonym, or translation in English, *i. e.*, “by,” and readily understood without explanation — scarcely the case if the new character is used. In the second place, printing offices do not possess the aforesaid character — the engraver being visited to secure the same for use last month, this justifying and emphasizing the contention I am making.

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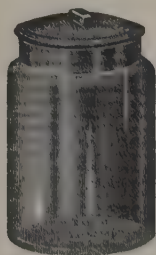
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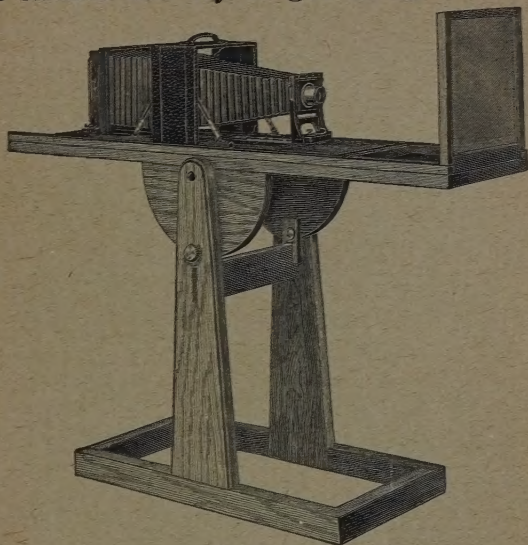
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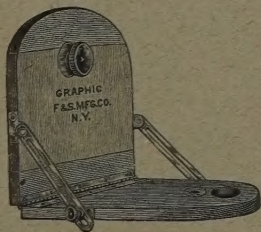
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